



DUN'S REVIEW

and Modern Industry

PRINCIPLES OF PRODUCTION

PART III OF

THE PRACTISE OF MANAGEMENT

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Industry?
HERE'S THE MARKET**

**THE RECENT TREND
IN REAL ESTATE . .
To Own or To Lease**

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products a fair trial?**

**WHERE DO THEY BUY
. . . AND WHY?**

**Anyone can make
A GOOD SPEECH**

APRIL, 1954
75 cents



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Sales Offices: Graybar Building, N. Y.; Fisher Building, Detroit

Subsidiaries: Pacific Press, Inc., Los Angeles. Phillips & Van Orden Co., San Francisco

* This four-color illustration of an electro-plating acid bath, for example, contains more than 5,400,000 dots, each a microscopic printing surface.



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245 ERIE STREET, BUFFALO, N. Y.



5201 SOUTH SOTO STREET, LOS ANGELES, CAL.



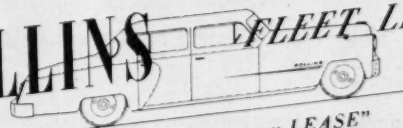
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President

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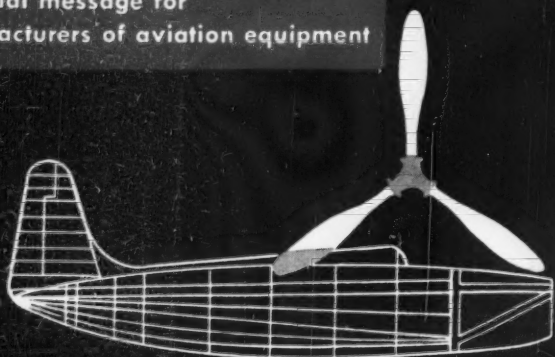
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DUN'S REVIEW and Modern Industry

Principles of Production..... 39

PETER F. DRUCKER

The limitations on physical production must be turned into advantages by management to improve the performance and results of business enterprise. The third of a series of articles.

Samples: Do They Give Your Products a Fair Trial?..... 45

ANNESTA R. GARDNER
Industrial Editor

Samples can do you more harm than good if not handled wisely. Nobody wants to lose sales, so here are some suggestions and checkpoints which will help make your samples profit-makers.

Where Do They Buy and Why?..... 51

NEWEL H. COMISH
Professor Emeritus of Business Administration,
University of Oregon

What are the habits of to-day's retail consumers? What facts, desires, prejudices guide their shopping tours? Here is a report on habits that have significance for the entire retail market.

How to Start a Foreman's Union..... 53

ALFRED G. LARKE
Employer Relations Editor

It's one thing to tell your foremen they're part of the management team and another to act like it. If you really want to alienate your foremen, here is a practical list of things for you to do.

D E P A R T

Heard in Washington..... 7

News from the Nation's Capital of special interest to top management as reported by Paul Wooton.

Voice of Business..... 10

Top management speaks its mind on matters of national and world importance.

Photo Visit..... 22

A guided photographic tour of the new industrial museum of the American Iron & Steel Institute.

Letters to the Editor..... 29

They start: "Dear Sir," and then our readers take over: complimenting, criticizing, amplifying.

Frontispiece..... 38

Apple blossoms in bloom in Idaho are, along with robins and crocuses, one of the signs of Spring.

The Trend of Business..... 67

Concise reports on the many aspects of the national economy, as prepared by our Business Conditions Staff.

Subscription: \$5 a year in U. S. A. and Possessions and Canada. Elsewhere \$10. Single copy, 75 cents. Staff personnel and other information appears on page 152. Copyright 1954 by Dun & Bradstreet Publications Corporation. Copyrighted under International Copyright Convention.

Selling to Canadian Industry?..... 56JAMES K. BLAKE
Marketing Editor

If you are, chances are you can increase your sales even further; if you're not, there is a big market waiting for you to the north. Here is a report with pinpointed statistics: where, what, and how much.

The Recent Trend in Real Estate: to Own or to Lease..... 60

LOUIS J. GLICKMAN

Increasingly, large business properties are being sold and then leased back. Here is a discussion of some of the advantages and disadvantages of this system and why it may be important to you.

Anyone Can Make a Good Speech..... 61MARGARET L. JONES
Executive Methods Editor

Business men everywhere are being called upon more and more for speeches. Tricks of the trade can make the burden easier and the speech more enjoyable for those whose talents don't include oratory.

Atoms at Work..... 134

A special brief report on the recent advances in the field of nuclear physics. From powering submarines to aiding industrial production processes, atoms are becoming more useful every day.

M E N T S**Employer Relations..... 85**

Special employee papers give out information often overlooked by the employee in normal channels.

New Methods and Materials..... 105

Plastics, coating processes, and electronic computers are some of the new developments reported.

Executive Bookshelf..... 115

Reviews of current literature for and by business men to stimulate management thinking.

Business Failures..... 123

The economic state of the nation reflected in failure and liability statistics. How many and where they occurred.

Sales and Distribution..... 129

A survey of what sales management is thinking is included among the reports on recent developments.

Here and There in Business..... 137

New techniques, uses, and products to do things better as observed by our editors.

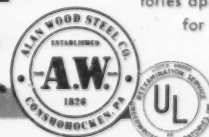
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Heard in

WASHINGTON

WHILE it will be difficult to fill the shoes of Roger Kyes, Charles Wilson, the Secretary of Defense, believes he has picked another star to serve as his deputy. Robert B. Anderson, who moved over from the Department of the Navy, has had more business experience than most men of his age. He is 44. He has tackled the new job with uncommon vigor and promises to hew to the line marked out by Kyes.

Melting away of backlogs has made some executives jittery. Treasury Secretary Humphrey points out that a big backlog of orders is a war phenomenon. Under normal business conditions ordering is done as nearly as possible on a hand-to-mouth basis, but those who have taken over in the last decade are not used to it.

Business men who have accepted appointive positions in the Government service find that they have to work longer hours than in the jobs they left. Much of the time during regular office hours is taken up with callers. Most of the fundamental thinking and creative work has to be done at night or by getting up early in the morning.

Public officials are expected to make speeches. The demand from that type of service never lets up. If the talk is to be made away from Washington the official is allowed his \$9 per diem which usually means that part of the expense comes out of his own pocket. To accept transportation or free hotel accommodations is frowned upon.

High investment in employment-making industries versus relief for a group that should be kept tax conscious will continue to be the subject of debate after the tax bill reaches the statute books. It will be pressed as an issue in the Congressional campaign this Fall.

In an effort to emphasize the responsibilities of the Federal Reserve System to the public all newly appointed directors of the regional banks and their branches are being brought to Washington for briefing. There are 108 directors of the twelve regional banks and seven to nine directors of each of the 24 branch banks.

Officials complain that banks are not doing their part to stimulate the borrowing necessary to encourage expansion. Many lending

institutions, they say, prefer fewer loans at high rates. Long-term rates and the rates charged by banks are as high now as when there was need to put brakes on a boom.

A spectacular job has been done by the Treasury in debt extension. Maturing issues have been refunded with medium-term securities; \$11 billion of short-term debt has been shifted suddenly to the medium-term sector of the market. This has eased a Treasury problem and reduced the liquidity of banks. Now the Treasury can issue more short-term securities at low rates, thus meeting a need of the present business situation. As the Treasury can forego for a while the issue of long-term securities it leaves the market available for business, mortgage, state, and local government issues. The effect is to encourage other investors to put money into industry.

Western Europe has been worrying for years fearing it might be engulfed in the backwash of an American depression. Instead recovery abroad now is supplying an important support for the American economy.

Increased use of bankers' acceptances is being recommended as a means of increasing foreign trade. They were used to great advantage in the 1920's. They constitute a high-grade credit instrument that attracts liquid money. Foreigners buy them because of the tax advantage.

Changes are under way in Patent Office procedure which promise to increase greatly the productivity of each examiner. A quiet study of efficiency was begun shortly after the new administration took office with the objective of reducing the backlog of applications. There are now 180,000 applications in the Patent Office awaiting processing.

Paul Weston

WASHINGTON, D. C.

You've heard a lot about re-rated motors lately. It's a great step forward—and, like other motor makers, Robbins & Myers has re-rated its motors. But regardless of motor size it will pay you to...

Compare the new re-rated motors before you choose!

Before you make up your mind about re-rated motors, let's see what makes them different from the old frame sizes. New electrical concepts? Not at all! The principal difference is *size*. And engineers have known for years that it takes no special treatment to reduce the size of a motor.

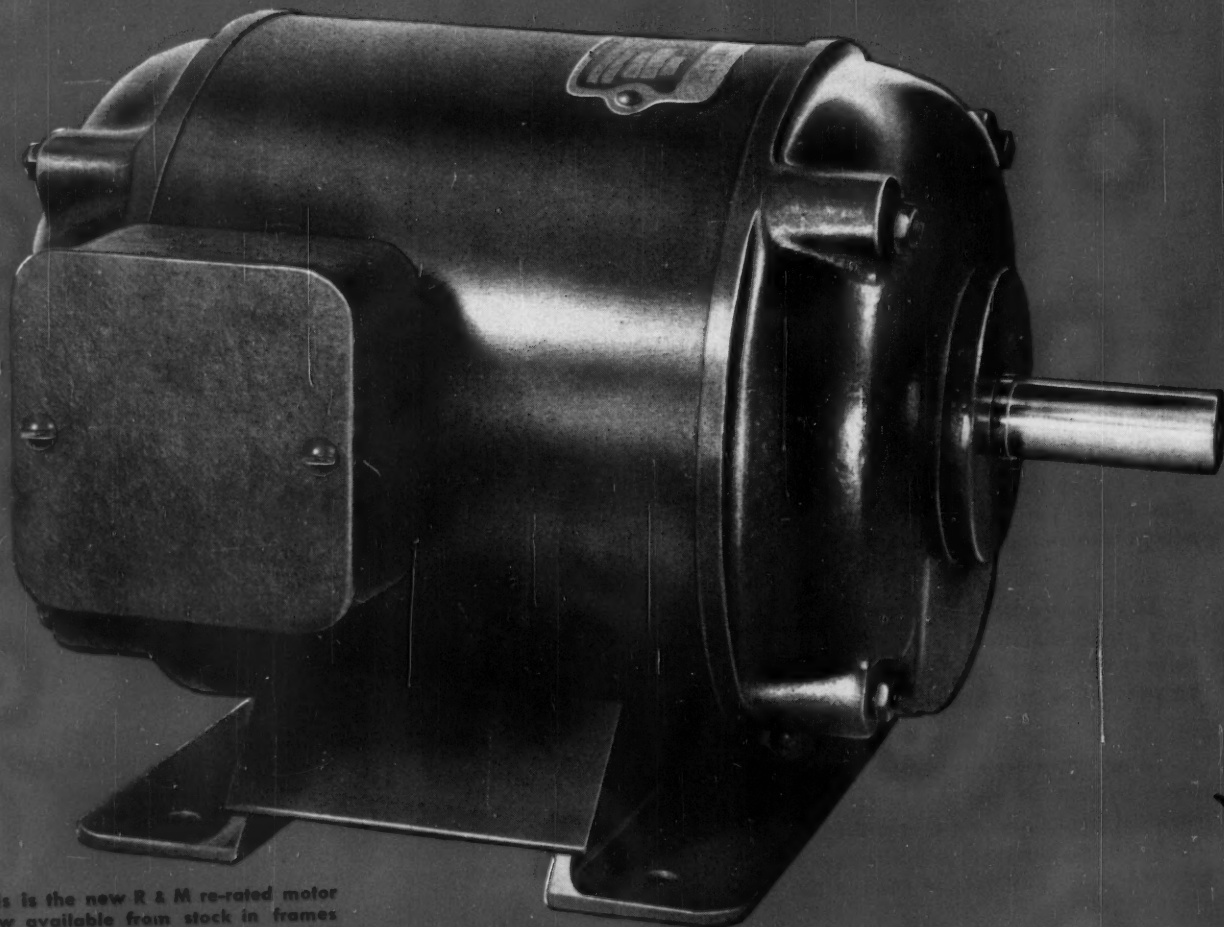
That's why we invite you to compare. You'll see that most of the "new" features you've been reading about lately have been available for years in the Robbins & Myers motor. For instance—screened end-head openings, pre-lubricated bearings, full-height, protective end-heads.

The main reason why R & M motors still lead

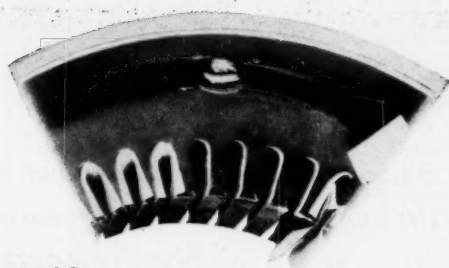
the field is the construction features shown at the right. These are the things that can make or break a motor when it gets into your plant. And their early adoption by R & M has *consistently* led the industry, as the record shows.

Many of these R & M developments are now in widespread use, of course. That's not a complaint; we're proud of it! But this record of advanced engineering does suggest one thing: *if you want to be sure of getting the latest motor developments, investigate the Robbins & Myers motor.*

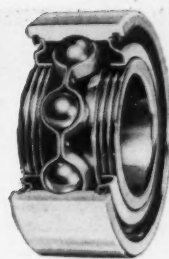
Write today for your free copy of bulletin 400MI. It will give you more details.



This is the new R & M re-rated motor now available from stock in frames 182 and 184. Frames 213 and 215 will be available in early June.



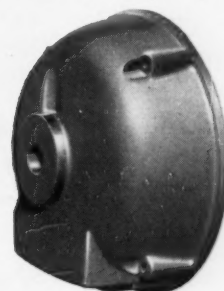
1912—R & M first to adopt pear-shaped slot cells, allowing more room for copper.



1939—R & M first to make pre-lubricated, sealed ball bearings available on standard integral horsepower motors. Even today R & M gives you the largest bearings for any given shaft diameter!

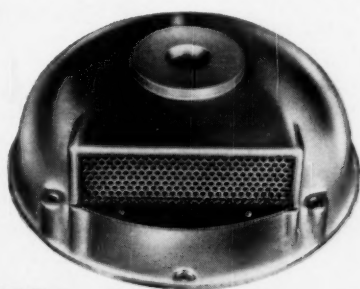


1940—R & M first to insulate between all coil ends, not just phase groups. This gives you 3 to 4 times greater insulating value, and it's still exclusive with R & M.

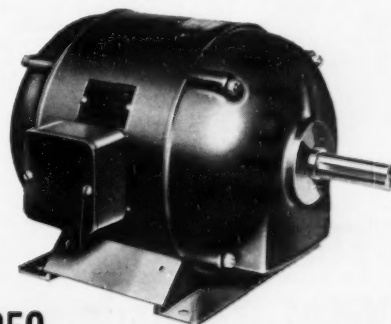


1944—R & M first to provide cast-iron, full-height end-heads; internal parts are accessible only from below.

Only R&M has given you ALL these features!



1950—R & M first to screen end-head openings at no extra cost. Screened openings keep out debris and rats. (Don't laugh: rodents are a real problem in many places!)



1950—R & M first to introduce a truly "weatherized" motor for industry-wide use, indoors as well as out. All motor parts are protected—inside and out—against moisture and dampness.



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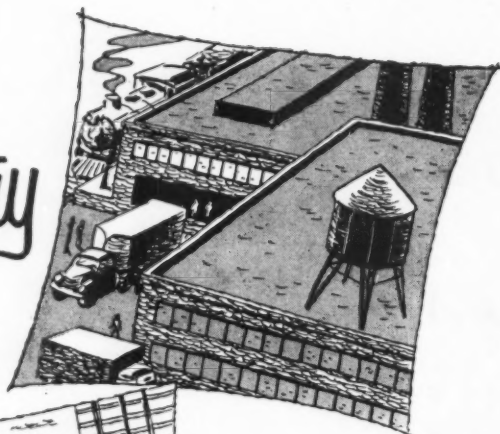


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*The rôle of banks
in small business*



GEORGE CHAMPION

Senior Vice-President, Chase National Bank, before National Credit Conference of American Bankers Association, Chicago.

this involves concentrating the power of lending in any unit which is subject to political influence, the danger is indeed very great.

*Business and individuals
in national defense*



C. R. SMITH

President, American Airlines, Inc., before a meeting of the Los Angeles Chamber of Commerce, Los Angeles, Cal.

On the whole, it is the policy of the new Administration to get the government out of business wherever that is possible. Government agencies are turning more to private banks for assistance in financing.

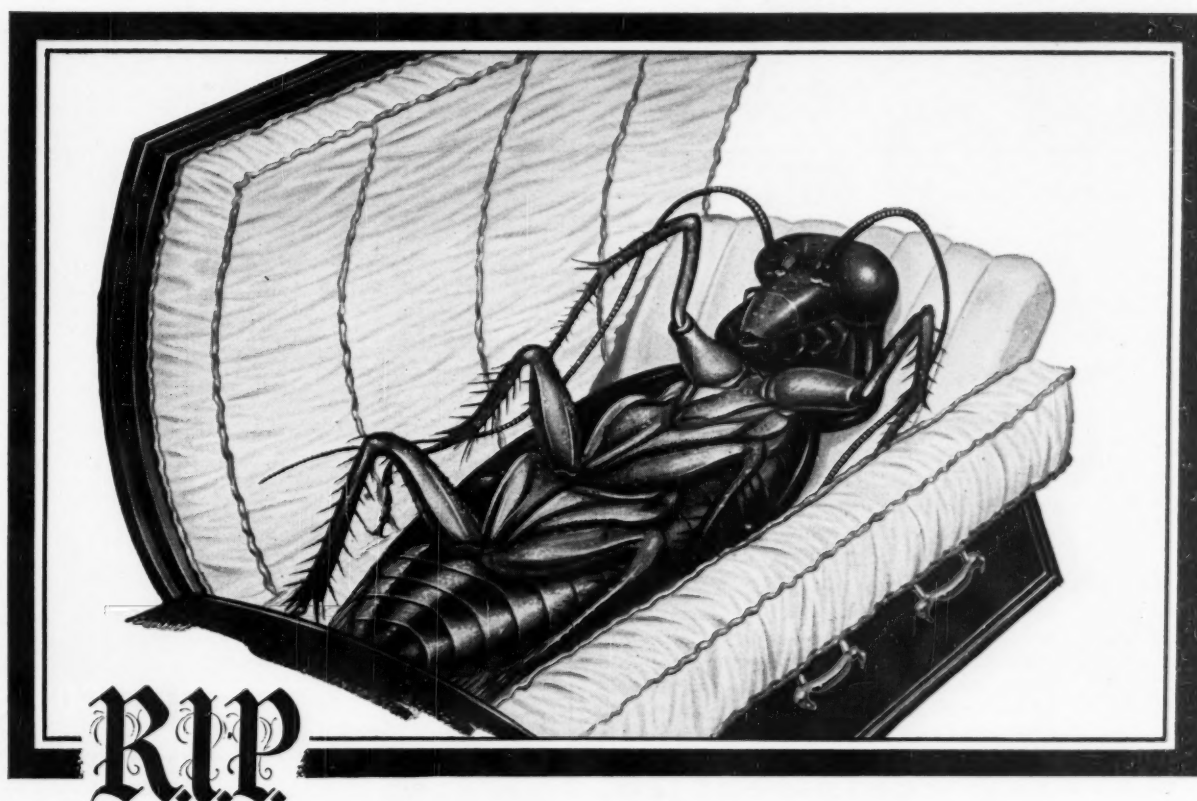
It is the responsibility of our banks to see that all worthy business, whose management has integrity and ability, is provided with proper loans. The banks of the country have had an excellent record in fulfilling this function in the past, and to-day our banks are better organized than ever to meet all worthy credit needs.

In view of the announced policy of the Administration to get the Government out of business wherever possible, I would hope that the Small Business Administration would move with great care and great caution. It has the experience of the Reconstruction Finance Corporation as a grave warning. We all observed how that agency mushroomed to a financial octopus whose tentacles reached beyond the furthest stretch of the imagination of its original sponsors. The history of governmental agencies is one of continuous expansion; and when

Taxation in its multiple forms has increasingly become a principal expense of business. The most imposing element in the tax load is, of course, the cost of a wide variety of Federal services. And of the Federal services, the costliest by far, dominating all the rest in its scope, is the defense of the nation.

Enormous as is the cost, it is not a crisis cost. Were a more acute emergency to be forced upon us, the United States could, of course, divert a much higher proportion of the national product to defense.

Is it not time that we business men informed ourselves on the nature and objectives of national strategy? Too many of us have been content to assume that strategy, like nuclear physics, medicine, and the law, is peculiarly a province of the professionals. National strategy is only the name given to the military and political means and policies organized in support of certain national objectives, the crystallization of which is the sum total of your



control insects with **VAPOSECTOR!**



West Atomizing Equipment (portable or permanent) has exclusive suction spray nozzles that produce a "dry fog" with uniformly sized 8-micron VAPOSECTOR droplets. These nozzles use less insecticide, cover a wider area, produce a greater kill.



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VAPOSECTOR controls insects by "double penetration." When used with West atomizing equipment, it becomes a "dry fog" that reaches and penetrates hiding places, and then penetrates the insect's outer covering for a permanent kill. Insects have no place to hide, no time to escape. Demonstrations have revealed dead insects in numbers never thought possible.

West can supply VAPOSECTOR, special mill sprays and fumigants, residual and contact insecticides, spraying equipment—or a *complete insect control program tailored to fit your needs!*

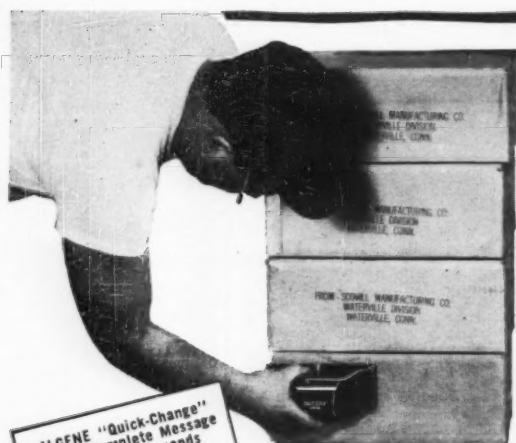
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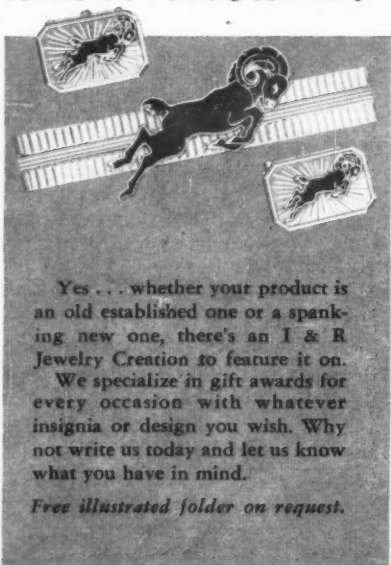
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aspirations and mine. As citizens we all have a part in the policy-forming process, consciously or otherwise. And as business men we have, in terms of enlightened self-interest, a still wider concern. For the most powerful single factor regulating the national economy to-day is the annual bill for national defense, and the consequent priorities attaching to the national resources.

The interests of business are inseparable from national defense; whatever happens in the counterplay of world strategy must sooner or later communicate its effects, for good or ill, to business.

Let us give this subject our continuing interest and analytical attention. We will all benefit as citizens. So will business and our country.

*Need for development
of scholars and researchers*

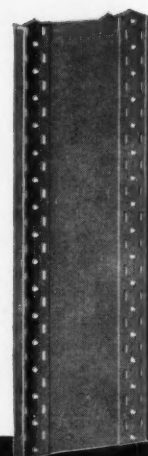


"... big business is yet unaware of the key role that universities . . . play."

J. CARLTON WARD, JR.

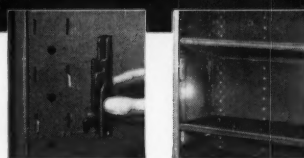
President, Vitro Corporation of America, before National Academy of Economics and Political Science in Boston, Mass.

In our enthusiasm we Americans sometimes lose a perspective, which is that until very recently it was only in the older civilizations that there was to be found a natural encouragement for men of exceptional scholastic ability to pursue their theoretical studies in the cloistered atmosphere of great universities. If the fundamental scientific developments leading to the new atomic age are studied, it will be noticed that in chronological order it was France, England, Poland, Germany, Switzerland, Australia, Denmark and Italy which contributed the majority of the great theoretical ideas. This was in spite of the fact that the experimental effort and the final development of the end products of all this research were first brought about here in the United States. It cannot be pointed up too sharply that, generally speaking, big



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erected
cost is
the real
cost

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Patented boltless shelf brackets eliminate 80% of the bolts and no tools are needed for adjusting.

Shelves in each section are independently adjustable, without disturbing other contents.

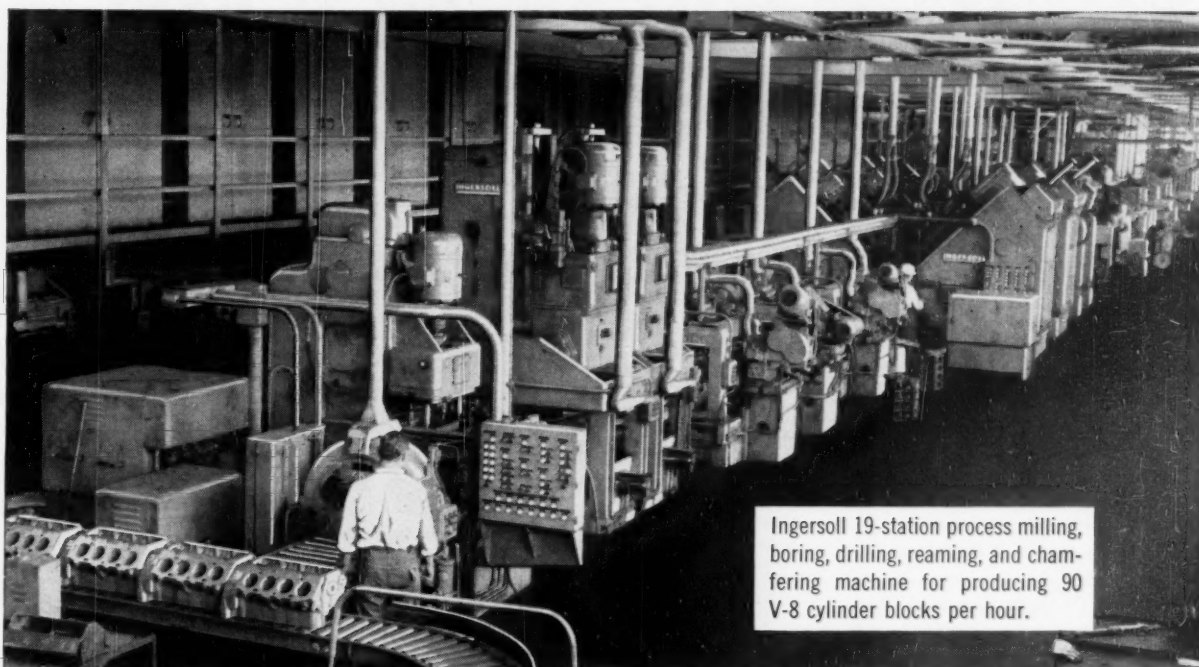
For complete engineering, planning and layout service, there is a De Luxe factory representative near you, ready to serve you without obligation.

Write for a free catalog now, while your mind is on shelving.



De Luxe Metal Furniture Co.
301 Struthers Street • Warren, Pa.

For over 25 Years Manufacturers of:
Storage Shelving • Library Shelving
Storage Cabinets • Shop Equipment



Ingersoll 19-station process milling, boring, drilling, reaming, and chamfering machine for producing 90 V-8 cylinder blocks per hour.

automation at its best uses **VICKERS** hydraulics

One operator controls this entire machine in which a total of 20 milling, 18 boring, 16 chamfering and 4 drilling spindles are at work simultaneously. A hydraulic transfer mechanism moves the V-8 engine blocks automatically from station to station . . . turning them as needed . . . clamping and unclamping. Feeding of the tools is also done hydraulically. The entire operation is controlled by electro-hydraulic circuits from the loading station.

Vickers Hydraulics was used throughout by The Ingersoll Milling Machine Company. Among the advantages gained by using Vickers Hydraulics are: (1) simplification of design, (2) flexibility of control, (3) instan-

taneous response, (4) ease of providing interlocks and overload protection, (5) low maintenance with minimum down time.

The Vickers Application Engineer near you will gladly supply any additional information you may desire regarding the many benefits to be gained by using Vickers Hydraulics.

VICKERS Incorporated

DIVISION OF THE SPERRY CORPORATION

1424 OAKMAN BLVD. • DETROIT 32, MICH.

Application Engineering Offices:

ATLANTA • CHICAGO (Metropolitan) • CINCINNATI • CLEVELAND • DETROIT • HOUSTON • LOS ANGELES (Metropolitan) • NEW YORK (Metropolitan) • PHILADELPHIA (Metropolitan) • PITTSBURGH • ROCHESTER • ROCKFORD • SEATTLE • TULSA • WASHINGTON • WORCESTER

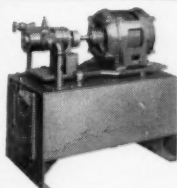
Representative Standard **VICKERS** Units Used on Ingersoll Transfer Machines



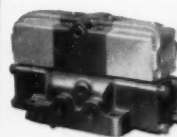
Single Stage Balanced Vane Type Pump



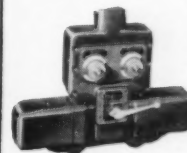
Double and Two-Pressure Balanced Vane Pumps



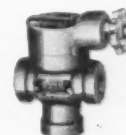
Power Unit is Self-Contained Power Source



Solenoid Controlled Pilot Operated 4-Way Valve



Traverse and Feed Cycle Control Panel



Balanced Piston Type Relief Valve

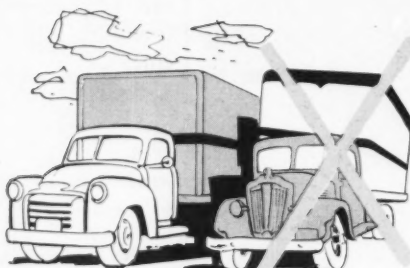
6684

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Hertz gives you all these benefits of truck ownership...but none of its "headaches"!



- 1. No capital investment**—Hertz Truck Lease Service supplies all the trucks you need. Releases your capital for other company finance needs.



- 2. Your present trucks purchased by Hertz**—Hertz will buy them at mutually agreed prices, and keep them in service; or, if worn out, will replace with new ones.



- 3. Hertz services all trucks**—Hertz washes, garages, repairs, maintains all trucks in top condition. Furnishes anti-freeze, tires, chains, and other necessary accessories.



- 4. Trucks engineered to your specifications**—Hertz supplies the exactly right trucks for your precise needs. Our truck engineers are at your service.



- 5. All gasoline, oil, etc., supplied by Hertz**—You furnish one thing only—a driver. Hertz takes care of everything else.



- 6. Insurance protection provided to suit you.** Hertz will gladly place Public Liability and Property Damage insurance through your own broker or agent, if you prefer.

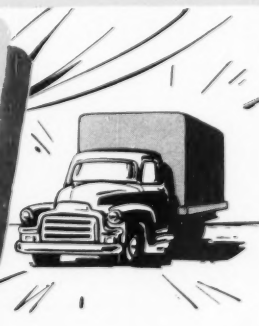


- 7. Extra trucks when you need them**—In case of peak periods or rush loads, Hertz supplies extra trucks for such periods.



- 8. Easier bookkeeping for you**—Instead of many bookkeeping items you have only the one bill sent by Hertz.

LEASE YOUR TRUCKS
from **HERTZ**
NEW TRUCKS...EVERYTHING
FURNISHED BUT THE DRIVER



- 9. Good-looking equipment** adds prestige to your company and it's good advertising because your trucks always look attractive.



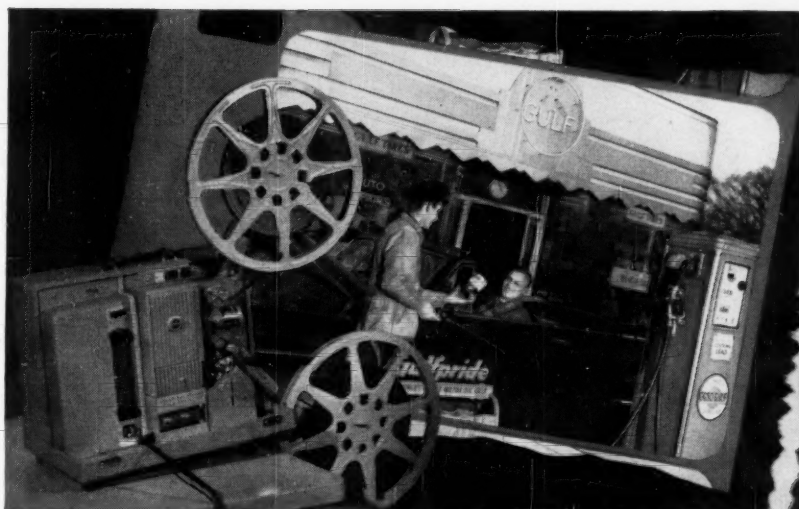
Hertz Truck Lease Service is most flexible. You may use all or any part of the above benefits according to your needs. On the other hand, if you prefer others which are not shown, Hertz will provide them too.

Hertz serves almost every type of business! Among Hertz customers are manufacturers, wholesalers, distributors, retailers... restaurants, laundries, cleaners and dyers, department stores, grocers, specialty shops, etc.

Hertz is the world's largest truck and passenger car rental organization, with a 30-year record of customer satisfaction. You, too, will find it pays to lease or rent trucks from Hertz.

For complete information call your local Hertz station or write or phone Hertz Truck-Rental System, Dept. H44, 218 South Wabash Avenue, Chicago 4, Illinois; phone WEBster 9-5165. No obligation, of course.

Look in your telephone directory under "H" for your nearest Hertz station. **HERTZ Truck-Rental SYSTEM**



How movies help GULF dealers make service-selling a big success

When your products are sold through thousands of outlets throughout the country, keeping dealers up to date on product improvements and selling methods can be expensive and time-consuming. The Gulf Oil Corporation, however, has found that this problem can be easily and economically solved through movies.

Easier, faster, cheaper

"Since we switched to movies, training our dealers is easier, faster, and cheaper," says a company executive. "And attendance at dealer meetings has improved.

"Movies make our training program more effective, too. Sales points are neatly tucked into the script so that they are convincing and easy to remember. And the movies graphically *demonstrate* how the dealer can make service pay off in profits. As a result, our customers get better service...and product sales are increased."

Trouble-free projection

Kodascope Pageant Sound Projectors

help to assure the success of this film program for Gulf. Gulf merchandising managers like Pageants because of their trouble-free performance, lightweight portability, and easy operation.

Pageants deliver more dependable service because they are designed to eliminate the chief cause of projector breakdowns—improper lubrication. They are permanently pre-lubricated right at the factory. And *only* Kodascope Pageant Sound Projectors have this important feature!

Ask for a demonstration

Every day, progressive companies like Gulf switch to movies to increase selling efficiency. Chances are they can mean added sales power and lower selling costs in your business, too.

To meet your most exacting requirements, there are six Kodascope Pageant 16mm. Sound Projector models—priced from \$375. Ask your Kodak Audio-Visual Dealer for a free demonstration or mail the handy coupon for full details.

Price subject to change without notice.

EASTMAN KODAK COMPANY, Dept. 8-V Rochester 4, N. Y.

Please send name of nearest Kodak Audio-Visual Dealer, complete information on Kodascope 16mm. Pageant Sound Projectors.

NAME _____

TITLE _____

COMPANY _____

STREET _____

CITY _____

STATE _____

(Zone)

Kodak
TRADE-MARK

business is yet unaware of the key role that universities must play in generating a favorable atmosphere in which exceptional scholars will work. These scholars are the men from whom will emerge the new scientific and philosophical concepts that will expand outward the boundaries of knowledge from which technological progress emerges.

New product creation and promotion go together



"... we must maintain our productive rate (and) increase it."

PAUL MAZUR

Economist and Partner, Lehman Brothers, New York, before First Annual New Products Seminar, New York.

For the task of promoting the growth of domestic demand so necessary for our economy, "newness" can be an essential contributor. And newness must include all of its phases: the original, the better, the more effective, the cheaper, and even the different.

The creation of the products that are original, better, cheaper, and different will remain the responsibility chiefly of productive engineering and research and of manufacturing skills and techniques.

The promotion of the new products created and the conversion of purchasing power into an actual demand for goods and into the sales that contribute to low cost production have been more particularly assignments of the marketing, advertising, and sales functions of American industry.

For *these purposes*, inadequate emphasis, attention, and appropriations are granted to the task.

For marketing research, pennies are spent in contrast to the dollars expended for production research.

Too often do the production capacities, production characteristics, and production research on design and materials recommend the new and different products. Basically, should not a thorough and funda-

Don't Walk... **TALK!**



THE **NEW** EXECUTONE INTERCOM

Saves steps, increases output, cuts costs!

Compute the cost of time wasted by executives and employees running back and forth. *That's how much the NEW Executone Intercom can save you!* Your voice—with lightning speed—gets information, gives instructions. Your employees accomplish more, too, with inter-departmental communication. "Inside calls" no longer tie up telephone lines. Office and plant operate at a new peak of efficiency!

Years ahead of its time in operation and design!

"CHIME-MATIC" Signalling announces calls with a soft chime and signal light, saves time on every call. New switching circuits for every need make new savings possible. Voices are clearer, distinct, instantly recognizable. Inexpensive 2 station system easily expanded. *See it—no obligation. Just mail the coupon.*

Executone

GET THE FACTS

COMMUNICATION AND SOUND SYSTEMS

EXECUTONE, INC., Dept. M-1
415 Lexington Ave., New York 17, N. Y.

Without obligation, please let me have:

- ☐ The name of your local Distributor
- ☐ Complete descriptive literature

NAME _____

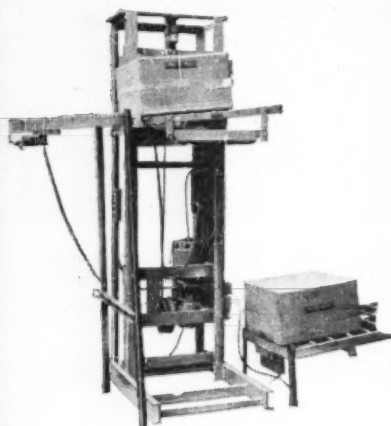
FIRM _____

ADDRESS _____ CITY _____

NEW Weld-Bilt

automatic CONVEYOR-LIFT ELEVATORS

*speed your
production flow*

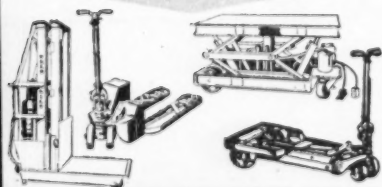


One of three Weld-Bilt elevators in the automatic plant of a leading Television Manufacturer

Here's a great time and man-saver where production flow demands *multiple-level* conveyor systems . . . It's a new Weld-Bilt development in AUTOMATIC Conveyor-Lift Elevators. Lifts or lowers packages or parts from one level to another, automatically selecting and lifting certain packages, passing others, if desired. Power rollers on lifting platform move load off in any required direction. All this is done without manual attention, to keep your production moving swiftly, without interruption.

The Weld-Bilt Automatic Conveyor-Lift can be built to any designed capacity, any height, with controls to handle any situation or need. Write today for details—or the services of a Weld-Bilt materials handling engineer. You'll save money, time, labor. Let us prove it!

Weld-Bilt Products Include:



WEST BEND EQUIPMENT CORPORATION

Materials Handling Engineers

303 WATER STREET, WEST BEND, WISCONSIN

mental study and knowledge of sales markets suggest more often the type of product for which attractive sales possibilities exist? Without an adequate if not accurate knowledge of sales markets, there can be a wonderful warehouse clogged with unsold goods, a miraculous productive mechanism rusting with disuse, and an able labor force fearful or even panicking under the pressures of the social and human disaster that can be so dangerously spelled out by protracted unemployment.

If we are to prosper, we must not only maintain our productive rate but increase it.

If we are to prosper and to avoid serious recessions and catastrophic depressions, we must change our economic emphasis. Marketing and mass distribution must grow up to its obligation within our economy as the *senior* partner of mass production.

On maintaining the capitalistic system



CLIFFORD F. HOOD

President, United States Steel, before 38th Annual Meeting of Associated Industries of Massachusetts in Boston.

There are those who interpret what has taken place in this country in the past generation as the breaking out of the Frankenstein of fabulous expenditure from normal bounds and its expansion through governmental and political avenues without a semblance of restraint. The past generation is referred to as the first trillion-dollar era in history. A thousand billion dollars of expenditure by governments within the United States alone!

We have experienced not only unbridled pyramiding of nonproductive overhead, but also invasion of the flexibility and impairment of

Continued on page 20

AUTOMATIC ELECTRIC COMPANY—A GREAT NAME IN COMMUNICATIONS



executives
are
asking...

how can I get more from each man-hour?

Alert executives everywhere are conserving company time with P-A-X Business Telephone Systems. With P-A-X, *your* employees can reach each other with fast *inside* telephone service—get more work done in the man-hours you pay for!



FOR EXECUTIVE CONVENIENCE

A special "Executive Direct-Line" unit, which gives two-way loudspeaker conversation at the flick of a switch, can be supplied with any P-A-X. Illustrated circular sent on request.

Your people can save walking and waiting time . . . cut errors, fatigue and correspondence . . . at the turn of a P-A-X dial. Across the nation, in business, industrial and service organizations of every type and size, this swift inside telephone service has paid for itself in the time it saves alone.

It will pay you well to find out how P-A-X can save man-hours and money for your organization. Complete facts and on-the-job case studies of P-A-X performance are yours on request. Call or write Automatic Electric Sales Corporation, (HAYmarket 1-4300), 1033 West Van Buren Street, Chicago 7, Illinois.

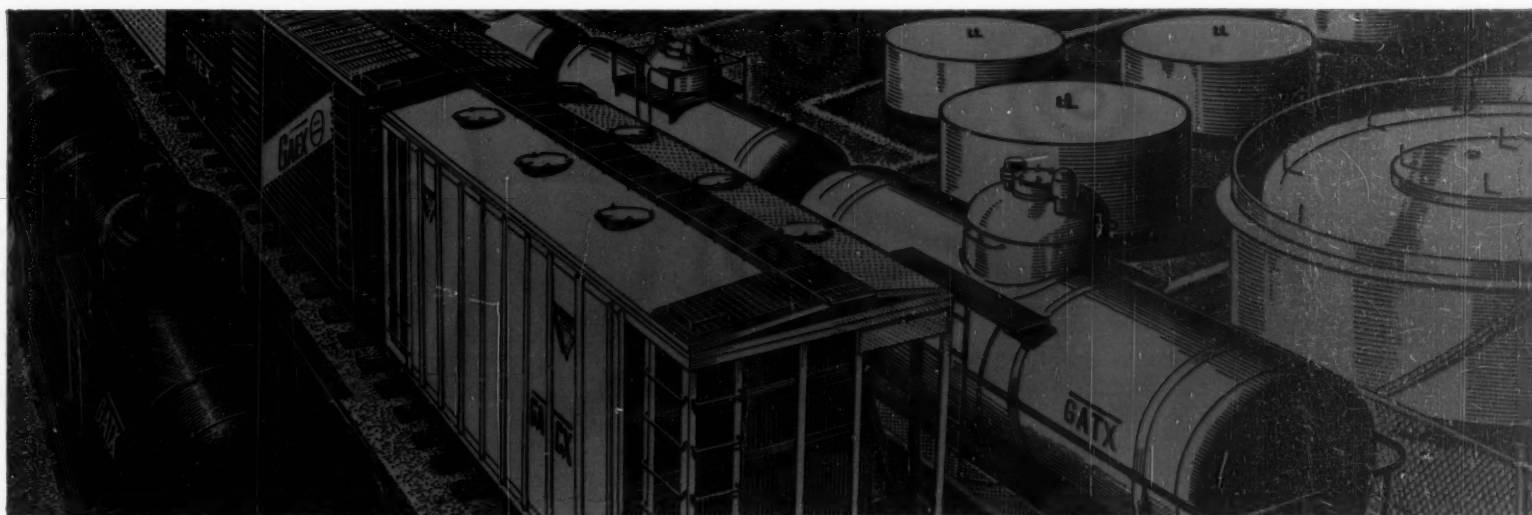


P-A-X

business
telephone
systems

AUTOMATIC  ELECTRIC

Write for this useful information today! P-A-X users have helped us prepare illustrated case studies describing P-A-X in daily use for: a financial institution; a processing plant; a school; a railroad; an oil company. Specify the case studies which interest you.



More than 60,000 General American freight cars—including over 47,000 GATX tank cars—provide specialized transportation for bulk liquids; food products; granular and powdered materials; and many other commodities.

General American Tank Storage Terminals provide storage, canning and drumming service for all types of bulk liquids at Chicago; Carteret, N.J. (Port of New York); Goodhope, La. (Port of New Orleans); Houston and Pasadena, Tex; Corpus Christi, Tex.

You risk no capital when you use these facilities designed, built and operated by General American. You eliminate the expense and problems of going into businesses not your own—yet use the specialized equipment needed for your products. You also benefit from a continuous program of research leading to new facilities to meet your needs.

shipping and storage services

LEASED

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**GENERAL AMERICAN ALSO SELLS
THESE PRODUCTS AND SERVICES TO INDUSTRY:**

All types of freight cars • Processing equipment • Custom plate fabrication • Wiggins Gasholders for chemical process and industrial gases • Wiggins Floating Roofs and structures for petroleum products • Kanigen chemical nickel-plating of many materials • Custom molding of injection, compression and reinforced plastics • Parker-Kalon fastening devices



**GENERAL AMERICAN
TRANSPORTATION CORPORATION**

135 South LaSalle Street

Chicago 90, Illinois

which PERSONNEL

PERSONNEL AND EMPLOYMENT RECORDS

PERSONNEL AND EMPLOYMENT RECORDS

SOLVED AT E. I. DU PONT DE NEMOURS & CO.

This record is the heart of the Personnel Department. It contains all pertinent data concerning an employee's past and present status. Speed in posting, rapid location for reference and quick review for skills is of utmost importance. The extreme flexibility of VISIrecord for form design as well as its compactness and efficiency provide an ideal solution to personal records.

ATTENDANCE RECORDS

ATTENDANCE RECORDS

SOLVED AT TRICO PRODUCTS CO.

Attendance records can now be maintained with a minimum of effort. The frequency of an employee's absenteeism, daily, monthly and yearly, as well as the reason, can be reviewed at a glance. This record, generally set up in clock number sequence, also provides an excellent cross-reference file for rapid determination of employee's name.



More than 50,000 VISIrecord cards may be made accessible to one operator, in a seated position.

PARTIAL LISTING OF VISIrecord USERS

American Can Company • Eastman Kodak Company • Eclipse Pioneer Division of Bendix Aviation Corporation • McCrory Stores Corporation • Milwaukee Gas Specialty Company • National Bank of Detroit • Packard Motor Car Company • Peerless Manufacturing Company • Sylvania Electric Products, Incorporated • The Wayne Pump Company • United States Graphite Company • Van Camp Sea Foods Company, Inc.

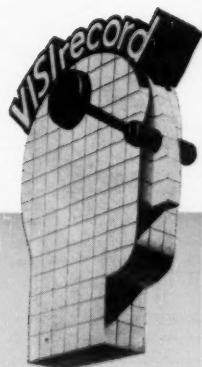
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The image displays a large, complex grid of small tables, each representing a different country and its various regions. The tables are organized into columns and rows, with headers indicating the country and region. The data within the tables is presented in a structured, tabular format.

Whether your company has plant-wide seniority or a problem complicated by departmental or job-family classifications, VISIrecord has the answer. Up-grading or bumping procedures as well as lay-offs or recalls are made as simple as "A-B-C." Unions welcome the simplicity of the listings and accuracy of the record.

[illegible]

Plant medical records are of ever-increasing importance. Rapid location for use by the first aid department and doctor is a must. Speedy refiling is a necessity and misfiling cannot be tolerated. Cards must be large enough for medical case histories. Follow-up for physical examinations should be simple and sure. VISIrecord provides a fast, accurate, compact visible system.

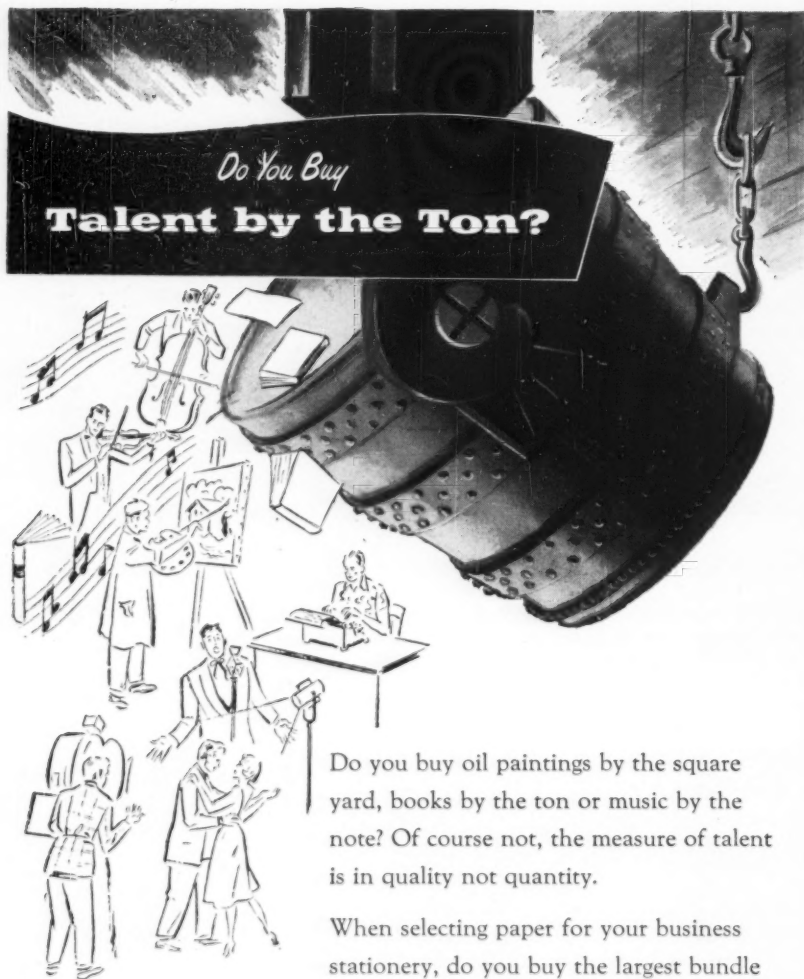


For full information on Personnel Records . . . and on Accounts Receivable, Credit, Preventive Maintenance, Inventory, Production Control, Purchase Record, Sales or any of VIS/record's unlimited applications in daily use throughout industry, write to VIS/record, Inc., Copiague, Long Island, N. Y.

*Lucrative sales opportunity! See our ad on p. 150.

VISIrecord, Inc. Copiague, Long Island, N. Y.

Offices in Principal Cities the World Over



Do You Buy
Talent by the Ton?

Do you buy oil paintings by the square yard, books by the ton or music by the note? Of course not, the measure of talent is in quality not quantity.

When selecting paper for your business stationery, do you buy the largest bundle for your dollar? Or do you realize the paper that carries your company letterheads also carries your reputation for quality?

The next time you consider business stationery, ask your printer to see samples of fine rag papers by Neenah. For a few extra pennies, you can add a wealth of prestige to your correspondence.



To plan a letterhead that WILL be preferred by your customers, ask your printer for a free copy of the "Neenah Guide to Preferred Letterheads." This exceptional book is based on a four-year survey by the Neenah Paper Company.



Matching envelopes available in all grades of Neenah rag content bonds

NEENAH PAPER COMPANY, Neenah, Wisconsin

VOICE

Continued from page 16

the equilibrium of production by outside forces not subject to control by management. This has made the position more brittle. Because it is so hard in so many respects, the question arises as to the extent to which it can successfully withstand adverse pressures that reasonably may be expected. If the stability and vitality of economic units are not bolstered when conditions are favorable, they will not be safeguarded at all. We now know only too well that supposed remedies slapped on during the blindness of adversity and panic usually prove to be remedies worse than the disease.

We must all address ourselves to the protection of a going-concern economy, an early increase in its resiliency, and the development of understanding with respect to it. By the same token we must confront the forces which have reduced its resiliency, and do all we can to readjust them in the light of reason rather than in the desperation of panic.

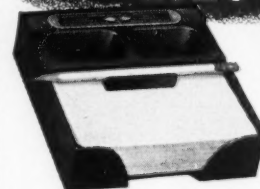
Additional and more effective means of crystallizing interest must be found and developed, whereby leaders and followers will understand that they are all in the same boat.

Efforts must be made on a larger scale to dissipate the thinking of persons who now believe in the delusions or misrepresentations of the fanatics who would substitute subtraction and division for addition and multiplication.

Every effort must be made to maintain the real income of the American people at the highest possible level that can be sustained. If this requires development and substitution of sound and durable measures for synthetic and temporary devices, leadership must be given to that end. Every responsible person owes it to himself to put forth the maximum effort to maintain and enlarge the income of the people, but to do so in ways that also strengthen and enlarge a going-concern position. With an aggressive application of the cardinal virtues of faith, determination, courage, and intelligence, we can yet protect our heritage and raise the level of its service for the benefit of the people of the United States.

HERE ARE A GROUP OF SILENT SALESMEN THAT SPEAK FOR YOU

The EXECUTIVE Line



The Executive
Desk Pad
No. 300
Lustrous Walnut
Bakelite, with two deep
wells, scads of 3x5 memo paper.
Blank sample — \$1.50 postpaid.

Reminds of You and Your Products Every Hour of the Day

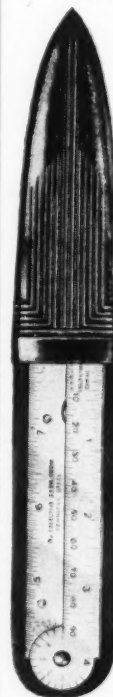
Your firm name, slogan or trademark on an Executive Line Advertising Specialty not only makes a distinctive, practical gift for your customers and business prospects, but builds good will and acts as a constant reminder of your organization.

The Executive Line is distinguished because each and every item is carefully designed to be extra valuable, extra useful and to render a lifetime of use.

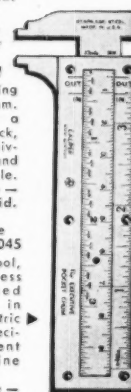
BILL CLIPS • LETTER OPENERS
TAPE MEASURES • STEEL RULERS
NOVEL PAPERWEIGHTS • KNIVES
CALENDARS • LIGHTERS

PLASTIC FOLDING 6-FOOT RULERS
AND YARDSTICKS • PEN SETS

The EXECUTIVE LINE products are available from most good Advertising Specialty firms or mail coupon TODAY, attached to your letterhead.



Triple Threat
Letter Opener
No. 1102
Stainless Steel
Handle—folding
8" ruler, a mm.
measure and a
protractor. Back,
a decimal equivalent
table and reduction
scale. Blank sample —
\$2.00 postpaid.



Pocket Slide
Caliper No. 1045
Multiple use tool,
18-8 Stainless
Steel. Etched
calibrations in
inches and metric
system and decimal
equivalent
table. Genuine
leather case.
Blank sample —
\$2.00 postpaid.



The
Executive
Ruler Knife
No. 503

All steel—lifetime
construction. High
temper carbon cutlery with 2
full mirror-polished blades. Wa-
fer thin, lightweight. Three scales.
Blank sample — \$2.00 postpaid.

The EXECUTIVE LINE, 136 W. 54 St., New York 19, N.Y.
Send free catalog and prices. I am enclosing
\$..... for following blank samples (checked).
No. 300 ☐ No. 1102 ☐ No. 1045 ☐ No. 503 ☐
Name.....
Firm's Name.....
Address.....
City..... Zone..... State.....

THIS COUPON MUST BE
ATTACHED TO LETTERHEAD

MI-4-54

One Big Reason Why

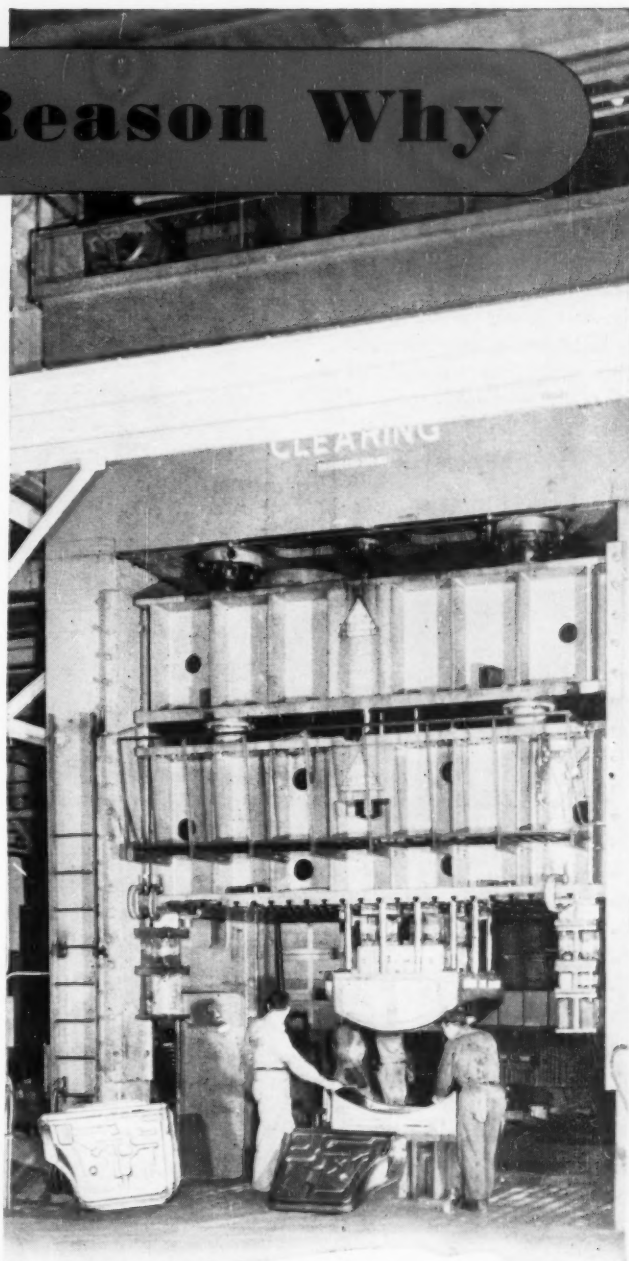
ALLIED provides industry's most complete SHEET METAL DIE SERVICE

What constitutes the all-inclusive service offered by Allied's Allite Division in Hillsdale, Michigan?

Facilities include a plaster pattern shop... foundry and manufacturing facilities for sheet metal dies made of plastic, zinc alloy and iron... a wide range of press equipment... a fully equipped metal shop for finishing of stamped parts.

Five presses of medium-to-large capacities are utilized for tryout and for short run production of customers' parts such as those used in prototype assemblies. The largest and newest (installed during 1953) of these presses is the 1500-ton triple-action Clearing hydraulic press shown at the right. With 60-inch stroke and a bed, ram and blankholder area of 8 feet by 13 feet, it provides adequate capacity for dies up to the largest sizes.

Regardless of what your sheet metal die requirements may be—whether for a few experimental parts or for high volume production—here the finest in modern equipment and the proven abilities of experienced men are put to work for you. If you are not thoroughly familiar with the many ways in which this Allied service can save you time, money and uncertainty, we'll be happy to send you full details.



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PARTS • R-B INTERCHANGEABLE PUNCHES AND DIES



ALLIED PRODUCTS CORPORATION

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PLANT 1
Detroit, Mich.



PLANT 2
Detroit, Mich.



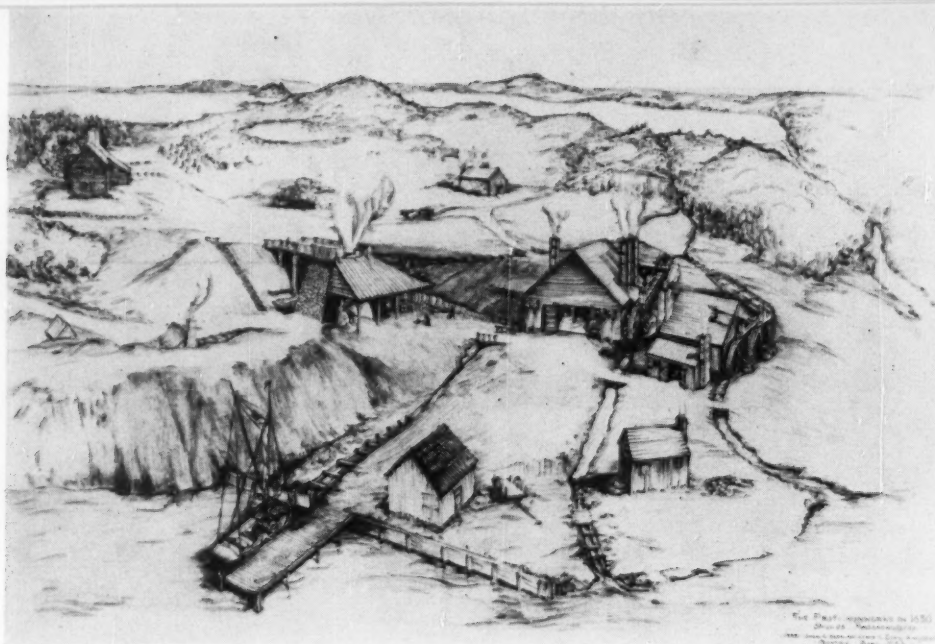
PLANT 3
Hillsdale, Mich.



PLANT 4
Hillsdale, Mich.

PHOTO VISIT

This September, America's first successful ironworks, at Saugus, Mass., will be dedicated, marking an end to a five-year project sponsored by the First Iron Works Association, and American Iron and Steel Institute. Here's how these years were used to win popularity and to start an education program, as well as finish a scholarly reconstruction of ironworks as it was (Right) in 1650.



Another INDUSTRIAL MUSEUM pays off

AN INDUSTRIAL relic has become a fine public-relations tool for American Iron and Steel Institute. The restoration of the Saugus ironworks, a capitalistic enterprise three centuries ago that provided bar iron to merchants and blacksmiths in the Colonies, is the type of prestige and promotion builder that many companies overlook (see "How to Make a Company Museum Pay Off," DUN'S REVIEW AND MODERN INDUSTRY, December 1953).

In the Saugus case, the public sees the cradle of an industry where eleven investors started a business with a thousand pounds, and less than 100 employees. This open-air "museum" helps make more meaningful to-day's steel-industry figures of 750,000 stockholders, \$9 billion investment, and 650,000 employees. As part of a long-range public education program, the Institute already has sent out over 5,000 filmstrips and 10,000 booklets about the restoration to high schools, colleges, and public libraries.



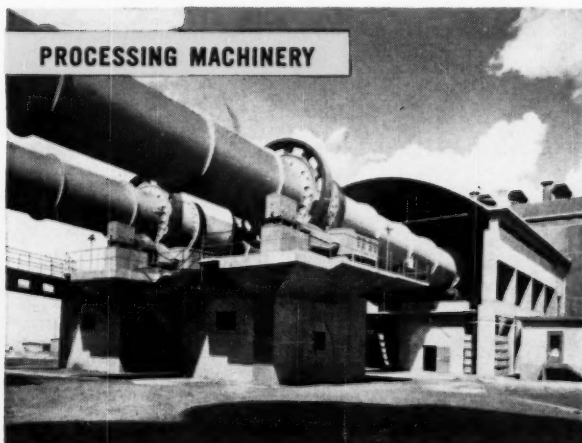
The steel industry's community-relations policy met stern tests well: For five years, from the time the foundation stones of the 300-year-old blast furnace were uncovered (above), to its reconstruction (right), work has been

carried on in the lap of modern Saugus. The project involved, for example, rerouting one of the town's main traffic arteries. Some of the ways in which co-operation was won, friends were made are indicated on the next page.



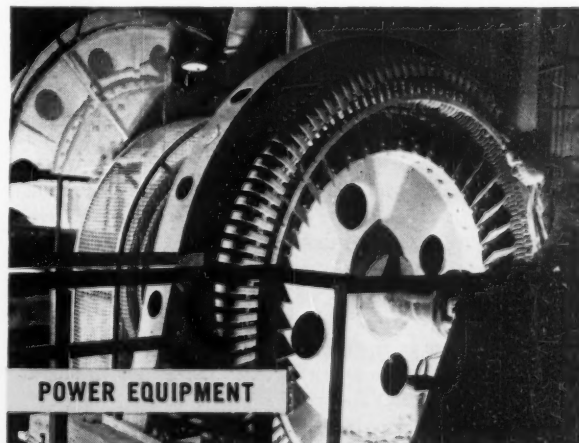
WHEN YOU USE CEMENT

Allis-Chalmers machinery works for you



PROCESSING MACHINERY

Cement for your plant, your home, for streets and highways is born in the fiery heat of Allis-Chalmers kilns like these. Largest rotating machines built, kilns may be 500 feet long, 12 feet in diameter. They burn powdered stone to clinkers. Then the clinkers are ground to face-powder fineness—and there's your portland cement! Kilns, coolers, crushers, grinding mills, screens—everything for a complete cement mill can be supplied by Allis-Chalmers.



POWER EQUIPMENT

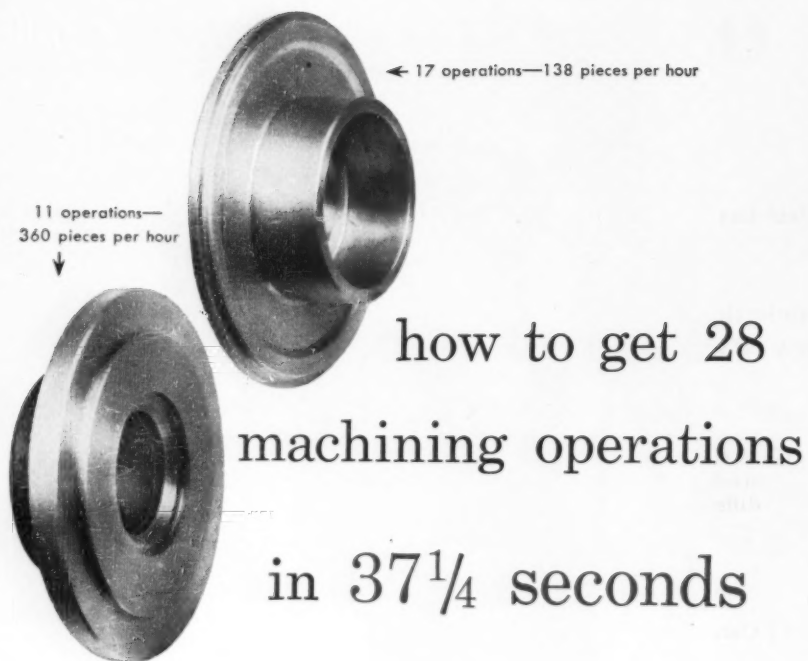
Power is another part of the cement story. Here's a 1000-hp Allis-Chalmers synchronous motor, driving a grinding mill in a large portland cement plant. In the same plant are Allis-Chalmers steam turbine generators, switchgear, transformers, control and many additional motors supplying the power to produce cement. For every major industry, this one company supplies machinery to provide two basic requirements: raw materials—and electric power.

ALLIS-CHALMERS

General Machinery Division, Milwaukee 1, Wisconsin



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In the highly competitive automotive business, all planning must be toward higher consumer acceptance of both quality and purchase price and still leave a profit for the effort. These prime essentials usually begin with small parts such as these and hundreds of others made on

Acme-Gridley Multiple Spindle Chucking Automatics

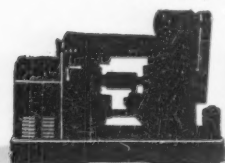
To achieve better components or lower factory cost, only such manufacturing improvements are made as will

- reduce machining time per piece
- eliminate work on extra machines
- relieve floor space and overhead
- release costly man hours for other work

For over 20 years Acme-Gridley machine design engineers and tooling specialists have helped to meet these vital needs—by improving basic machine stamina, by ingenious applications of faster cutting Tungsten Carbide tools, by simplifying operator effort. All of which applies to multiple spindle chucking and to parts made on bar automatics.

Regardless of the shape or size of the particular mass produced parts you make, let us show you how to put Acme-Gridley machines to work in your plant—MORE PROFITABLY.

REMEMBER—yours is also a market that must be protected against competition if you expect to make a profit.



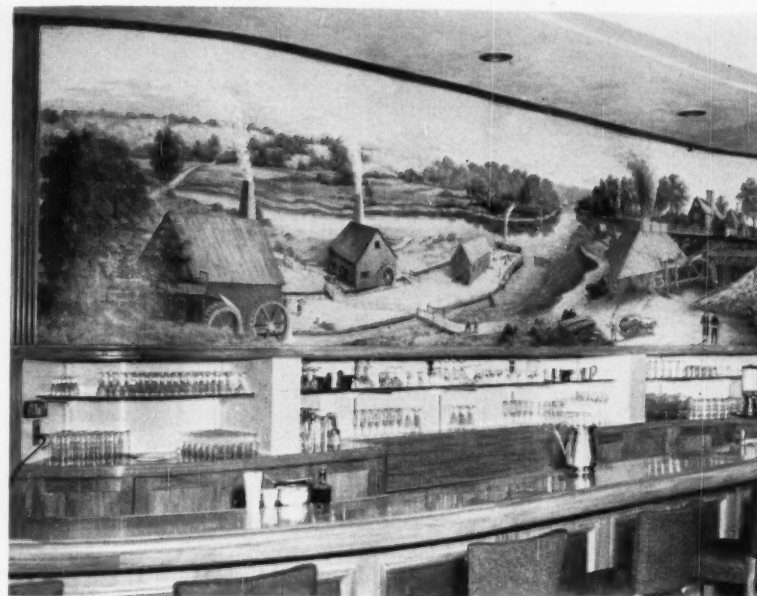
ACME-GRIDLEY
BAR and CHUCKING AUTOMATICS
(1, 4, 6, and 8 Spindle)—Hydraulic Thread
Rolling Machines—Automatic Threading
Dies and Taps—Limit, Motor Starter and
Control Station Switches—Solenoids
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MUSEUM PAYS OFF

Continued



When the Hawthorne restaurant in nearby Lynn, Mass., wanted to design this mural to go over its bar, restoration authorities obligingly made architect sketches available. (This scene differs somewhat from final sketches.)

Continuous co-operation

THE FIRST IRON WORKS RESTORATION

AT NEARBY Sausage, Massachusetts, the first successful ironworks to be operated in the colonies is being restored as a national shrine. The Sausage ironworks, which dates back to 1646, was a stable operation providing hundreds of tons of bar iron from which blacksmiths made many of the axes, saws and other tools so vitally needed to build a new country.

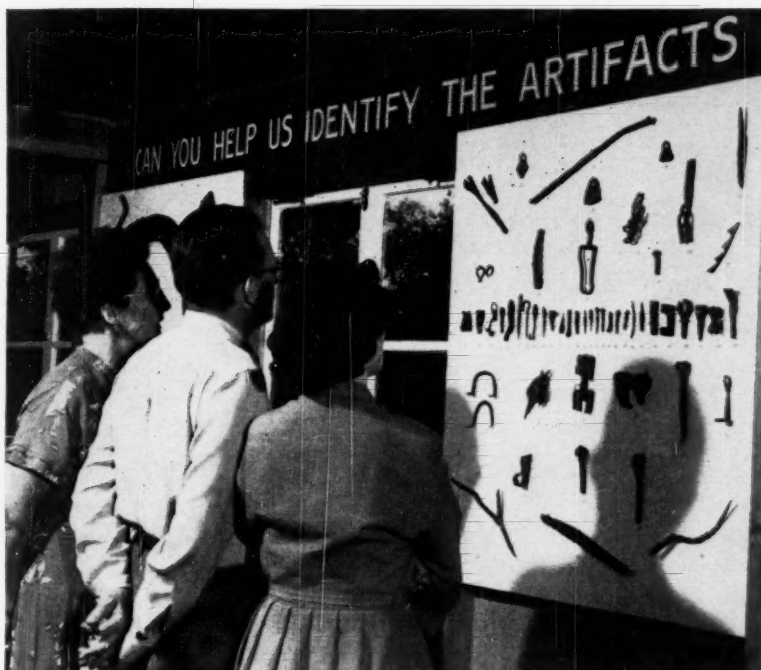
The restoration of this historic site is sponsored by the First Iron Works Association, Inc., with the financial support of American Iron and Steel Institute.

When the restoration is complete New England and the nation will have a worthy monument of a project which helped mold America. For from a humble beginning at Sausage three centuries ago, our country's steel industry has grown to its present eminence in American life.

Institute printed,
gave initial supply
of these table cards
for Hawthorne bar.



Although the area being excavated was fenced off, a gate was open during working hours for visitors who would watch from this hillside stand built especially for them. The signs indicated what was being uncovered then.



Early in the game, this museum display of relics, found as the site was excavated, helped to stimulate interest and make friends as visitors dropped their own suggestions regarding identification into a box that was handy.

with the community

The restoration has been popular for a long time, even though its official "opening" is not until September. Already, it is a favorite topic of speakers; and a local tourist attraction.

Neighbors were always encouraged to the site, beginning with early excavation days—even the local children, under the supervision of the archeologist, were allowed to watch important finds as they were unearthed. Over the five-year period, civic groups, local clubs, teachers have been luncheon guests of the Institute and taken on guided tours; the press, too, has been given specific, up-to-date news and photographs periodically.



Scale model of the ironworks, as it will be when finished, is available to groups for trade shows, displays. Recently, it was in Boston State House for an industrial exhibit, here being opened by Governor Christian Herter.

Do You Use Steel?

Here's a check list for evaluating suppliers

Steel has been in such short supply for so many years that there has been a tendency toward lower standards. With the situation now reversed, it may be well to raise our sights and give the production or fabricating departments a break. With this in mind this check list may be worth consideration.

First, on the character and capacity of the supplier:

- ☐ Is the supplier a good dependable company with a wide range of steels actually in stock so I can take full advantage of quantity differentials and save time in ordering and other office details?
- ☐ Am I establishing a business relationship with a company which will be able and willing to supply me with steel at fair prices next month or next year—even if demand should again exceed supply?
- ☐ Can I return unprocessed material if I find I can't use it?
- ☐ Can I count on the supplier to settle any reasonable difference of opinion to my satisfaction? Is the supplier customer-minded?
- ☐ Does the supplier have the interest and ability to carry my account in times of national stress or possible financial difficulty?

Second, concerning the material:

- ☐ Is the steel of known, uniform quality so that I know what can be expected of it and can be sure of getting steel of the same uniform quality next month or next year?
- ☐ Is the steel accurate as to size or gauge so that no time is lost in extra processing? Is scrap minimized or eliminated?
- ☐ Is the steel in good condition? Has it been carefully stored, handled and shipped so that it will arrive ready for use?

Third, concerning the service:

- ☐ Can I depend on clean accurate cutting so that the steel will be immediately available for use without further cutting or preparation?
- ☐ Can I be sure of correct weight?
- ☐ Will the steel be delivered when promised so I will get it when I need it, even on very short notice?

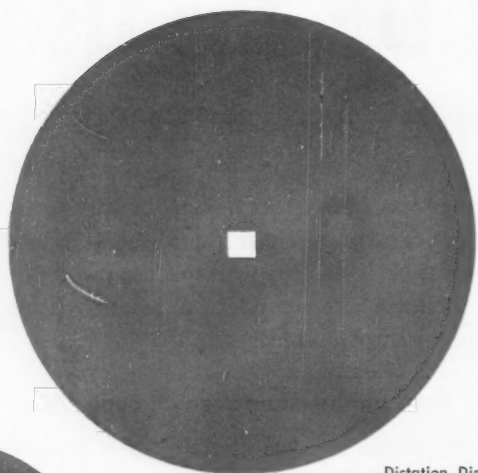
No source is perfect, and we certainly do not pose as such. However, we have been serving industry—with good sound steel from stock at fair prices for over one hundred years. And we have been working with our customers in many other ways from helping with finances to solving problems of fabrication and inventory control. We stand ready to serve you well whenever you call.

JOSEPH T. RYERSON & SON, Inc.

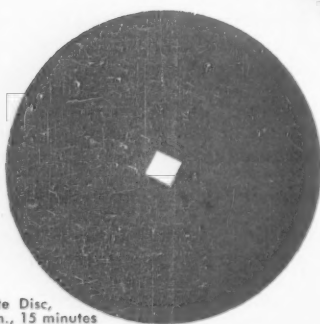
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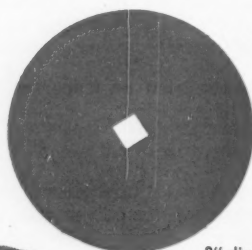
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make this
MORE THAN
the finest dictating
instrument
FOR YOU!



Dictation Disc,
5 $\frac{7}{8}$ " diam., 30 minutes



Mail Chute Disc,
3 $\frac{7}{8}$ " diam., 15 minutes



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3" diam., 8 minutes



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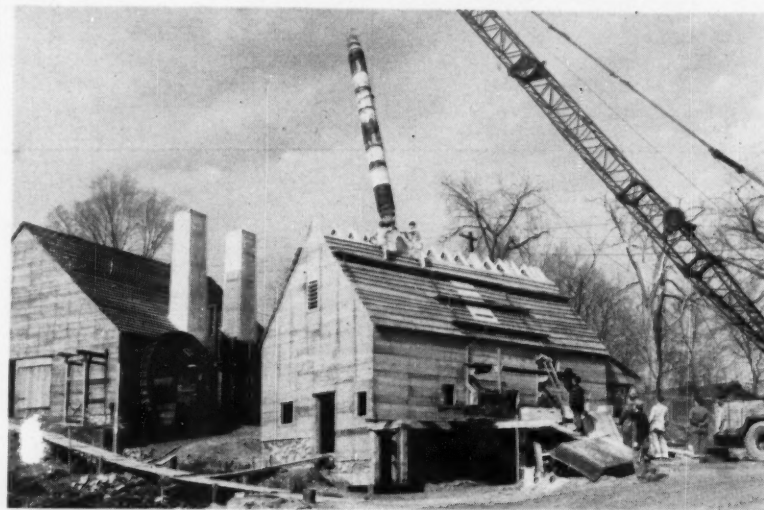
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New Haven 4, Conn.
Please send sample Disc and info.

Name
Company
Address

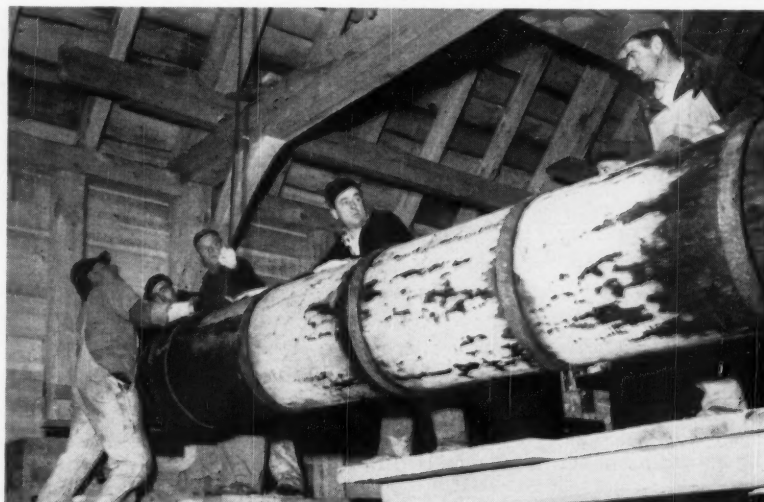
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MUSEUM PAYS OFF

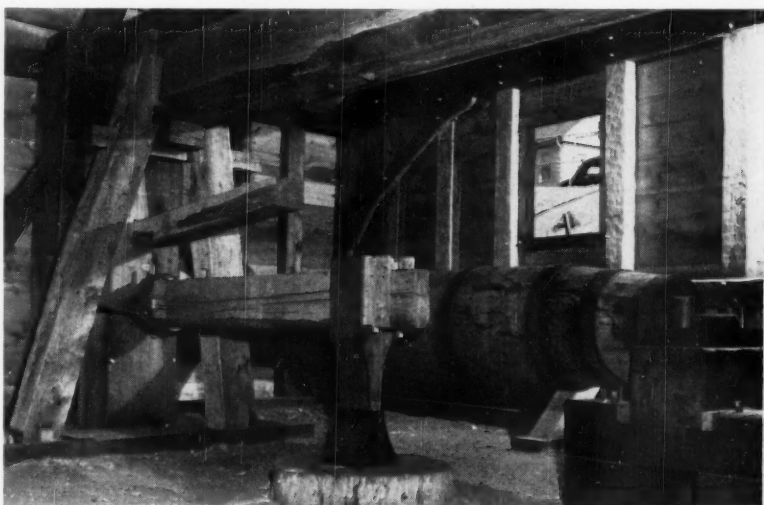
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On left is reconstructed forge. At right, crane swings water-wheel shaft into slitting mill. Relics found include hammer-head, piece of water wheel. Original site was overgrown with brush, when archeologist first viewed it.



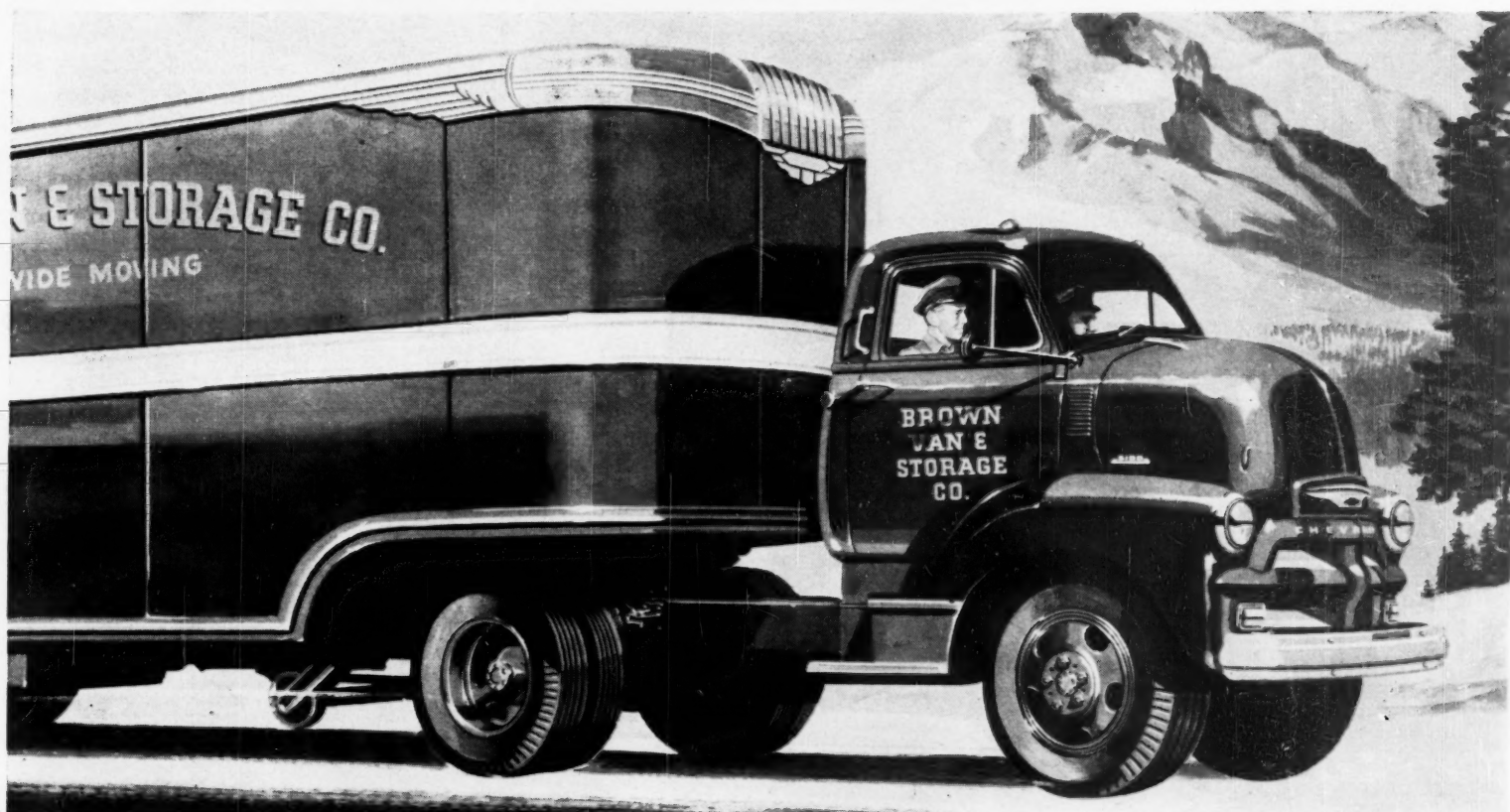
Water-wheel shaft is set into place inside slitting mill. To make shaft, a 30-foot tree trunk was sent from Maryland, shaped to correct size. When project is finished this Fall, it will have cost the steel industry \$1.5 million.



Here is reproduction of the hammer and anvil used in the forge. Research to insure project's accuracy spread to six states, England, and Europe, involved biologists, metallurgists, geologists, historians, archeologists, among others.

NEW CHEVROLET TRUCKS

deliver hour-saving power
that saves you money, too!



New Chevrolet trucks bring you great new engine power in every model—from light-duty pickups to heavy-duty tractors. And this new power means important savings of both time and money on the job!

YOU SAVE TIME WITH GREATER SAFETY

That's because new Chevrolet trucks permit you to maintain faster schedules *without* driving at higher maximum road speeds. Thanks to greatly increased acceleration and hill-climbing ability, you can save time where it counts. Instead of trying to make up for lost time, you actually cut down the time lost at traffic lights and on steep grades.

YOU SAVE PLENTY ON OPERATING COSTS

New Chevrolet trucks bring you high-compression power that saves you money every mile. All three great engines—the "Thriftmaster 235," the "Loadmaster 235" and the "Jobmaster 261"* deliver greater horsepower *plus* increased operating economy. In addition, the mighty "Jobmaster 261" engine reduces the need for operating in low gears on heavy-duty jobs. As a result, you shift gears less . . . save more on gas.

Now's a good time to see your Chevrolet dealer about a time-saving, money-saving truck. . . Chevrolet Division of General Motors, Detroit 2, Michigan.

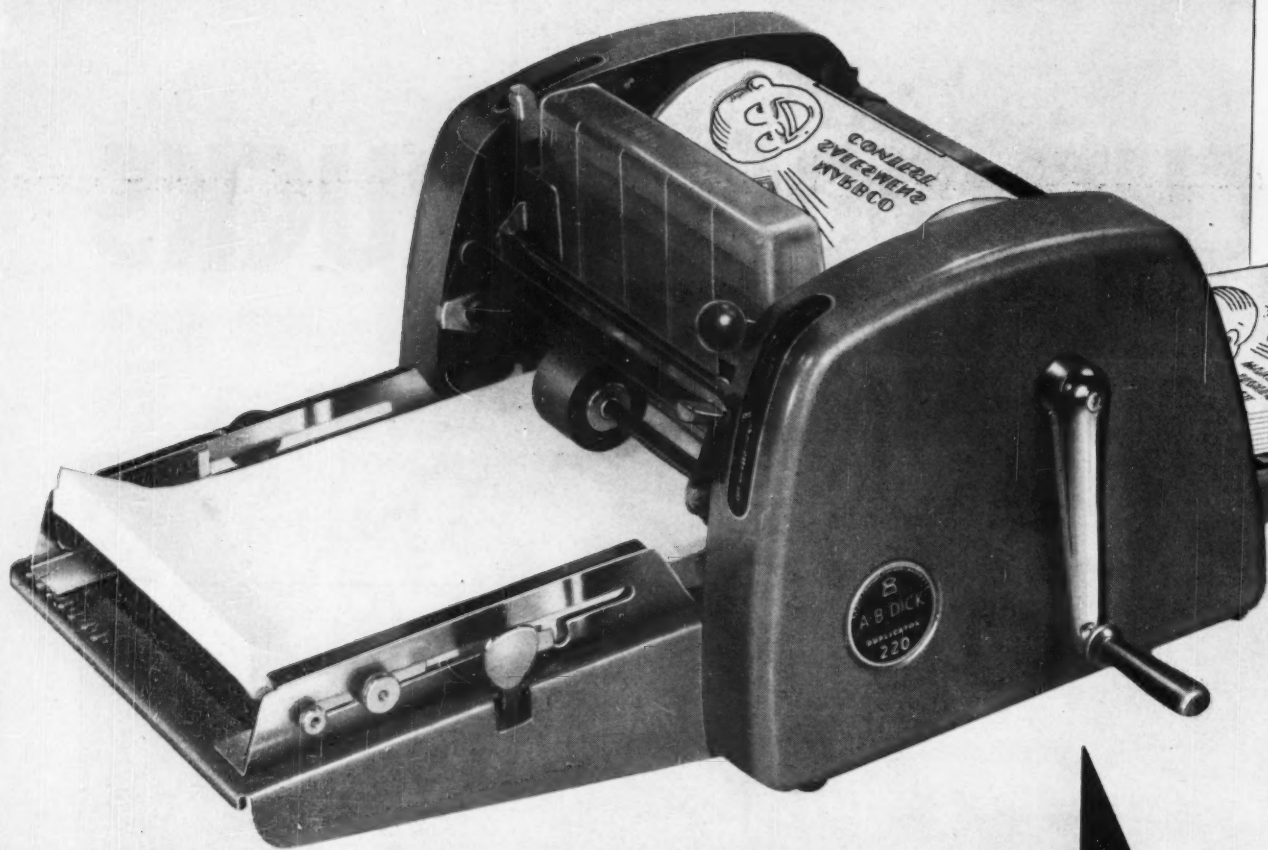
MOST TRUSTWORTHY TRUCKS ON ANY JOB!



CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

THREE GREAT ENGINES—The new "Jobmaster 261" engine* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT***—eliminates back-rubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

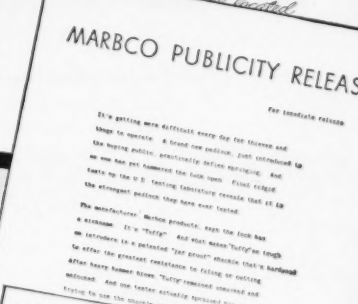
*Optional at extra cost. Ride Control Seat is available on all cab models. "Jobmaster 261" engine on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.



FOR THE PERIOD ENDING APRIL 25

CONTEST TO THE FOLLOWING MEN WHO DID AN OUTSTANDING JOB DURING THE PERIOD

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J. H. D.	80	J. H. D.	80
J. H. D.	60	J. H. D.	60
J. H. D.	40	J. H. D.	40
J. H. D.	20	J. H. D.	20
J. H. D.	10	J. H. D.	10
J. H. D.	5	J. H. D.	5
J. H. D.	2	J. H. D.	2
J. H. D.	1	J. H. D.	1



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LETTERS to the Editor

TEACHING TIPS

Evansville, Ind.

Dear Sir:

... I am a subscriber to this magazine and in the current issue which came yesterday, there is a most interesting article on page 27, "Getting a Friendly Grip on Your Future Employee," which I am sure will be of interest to the teaching profession in our city. It is my thought to make these additional copies available to our schools in Evansville. . . .

Walter G. Koch
President
International Steel Co.

A IS FOR ACME

Schenectady, N.Y.

Dear Sir:

Thank you very much for your very generous comments about the picture *A is for Atom* and your accurate report of our distribution activities.

Your excellent review has already resulted in a number of inquiries about the film's availability. The drawing power of *DUN'S REVIEW AND MODERN INDUSTRY* is clearly demonstrated.

J. K. Bryan, Jr.
Audio-Visual Services
General Electric Co.

PSYCHIATRY ADDENDA

Ithaca, N.Y.

Dear Sir:

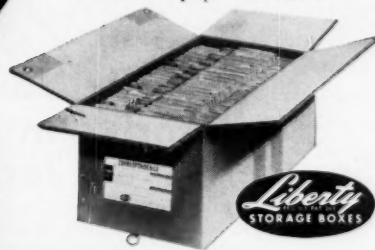
... I think you have given a very sound account of what industrial psychiatry (February issue) has to offer and what the thinking of psychiatrists with industrial experience is. I'd like to thank you for the members of the sub-specialty for what you have done.

I have one or two comments which are in no way an indication that I think the article should be revised. You speak of psychiatry as a relatively young branch of medicine

**This letter is 5 years old . . .
I had it on my desk in 5 minutes!**



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Indianapolis 7, Indiana

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and in view of the context this is true enough, but from another viewpoint psychiatry is quite old. Our national professional organization actually antedates the American Medical Association by three years, and our professional journal is the oldest medical journal in continuous publication in the United States.

I am a good deal more critical of Mindus' report than you. His errors were more than minor inaccuracies in name and title. He gives a very distorted picture of our training here and confuses the work of the School in its general education program with the specific program of psychiatric training. . . .

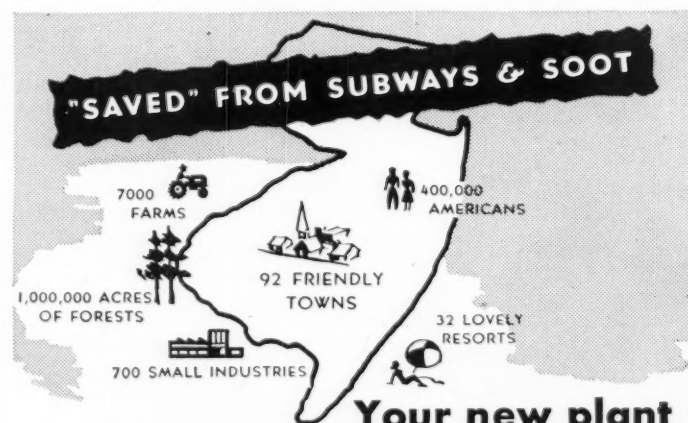
The ideal location of a psychiatrist in industry is somewhat subject to dispute, and I think depends considerably upon the nature of the organization and particularly the relationship of the medical department to the rest of the operation. If the medical department is closely integrated with personnel and with line supervision, the psychiatrist can, with that as a base, enter into training preventive work and mental hygiene activities very effectively.

tively.

In too many instances, however, the medical department is divorced from plant operations and for all practical purposes is simply an outpatient clinic that happens to be under the auspices of industry. I think the situation is changing rapidly, but there are certainly many medical departments of a sort that if the psychiatrist is attached to them his hands will be tied in doing very much more than treating people referred to him.

Further, we have until recently found that personnel directors are much more receptive to the idea of accepting our Fellows for training than are industrial medical officers. This situation is changing also, partly because industrial physicians are having to deal more and more with psychosomatic illnesses and are beginning to want psychiatric help, and partly because the schools of industrial medicine are emphasizing psychiatry more in their curricula.

I would say that if there is a good working relationship between the medical and personnel departments, it doesn't matter in which place the



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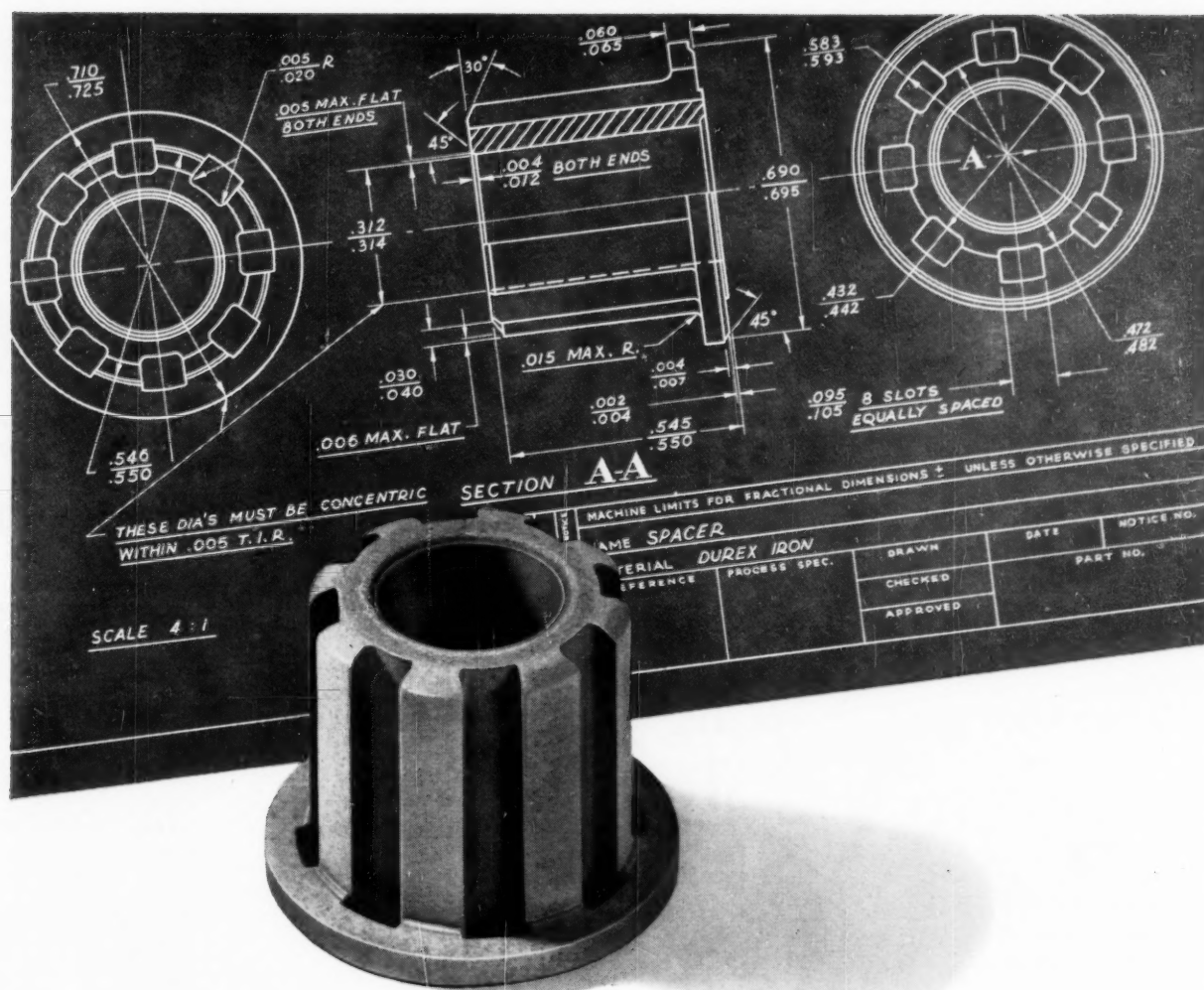
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The background print shows clearly the intricacies and the close tolerances demanded by this part. Yet at Moraine it is produced *completely finished* after

one press operation. Here's proof of what can be done through close cooperation between Moraine and customer.

The contributions of Moraine's metal powder process to industry are growing day by day. Complex designs like this are being produced by Moraine with great performance-improving, cost-cutting results for many customers.



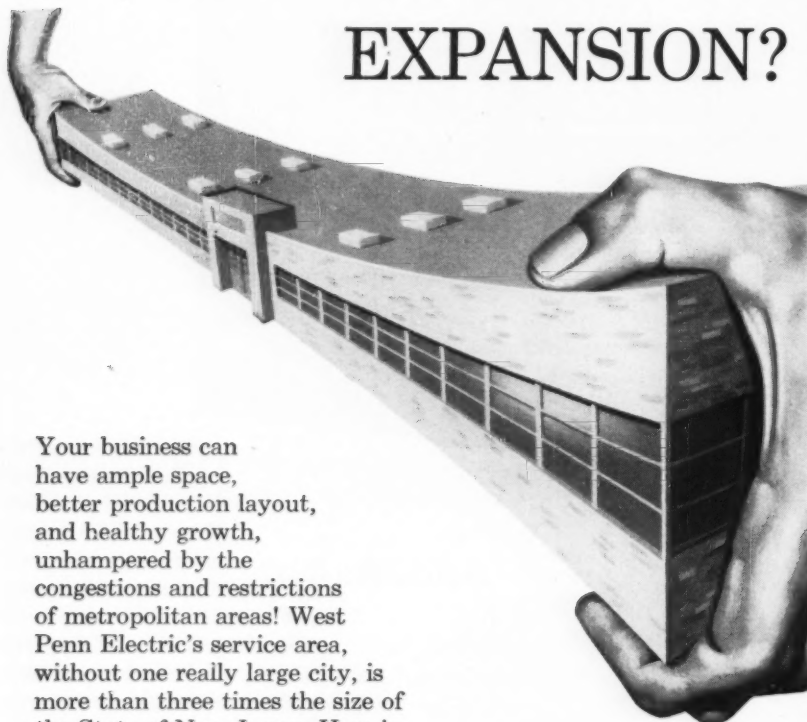
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DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO

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Temple Burling, M.D.
Cornell University

TO BE CONTINUED

Endicott, N.Y.

Dear Sir:

We have your letter of February 1 regarding the series of articles on "The Practice of Management" by Peter F. Drucker which is starting this month in DUN'S REVIEW AND MODERN INDUSTRY. We believe this will be good information too for some of our key men to read. . . .

A. W. Schaefer

President

Endicott Forging & Mfg. Co., Inc.

Elmira, N.Y.

Dear Sir:

. . . Please begin subscription with the February 1954 issue. . . . In checking the above-mentioned issue (am Media Director here), I took the time to read Peter F. Drucker's article on "The Nature of Management." I do not wish to miss any of these. Words are insufficient to commend them, based on this first one.

George R. Clapp

Howell Advertising Agency

AGAIN!!

Hammond, Ind.

Dear Sir:

A friend of mine . . . mentioned that he had read a fine article in DUN'S REVIEW AND MODERN INDUSTRY in the early part of 1953. The title was "How to Grow a President." I would appreciate your advising us if we can secure a copy . . . Joseph J. Badalli, President
Standard Equipm't & Supply Corp.

BREAK-EVEN

Pittsburgh, Pa.

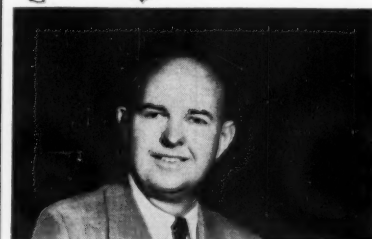
Dear Sir:

In the December 15, 1948 issue of *Modern Industry*, you published an article discussing the break-even chart. We used this article as a basis of a break-even point manual which was distributed throughout our organization as a guide. . . .

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* J. D. Craig, General Industrial Supply Corp., P. O. Box 243, Fort Worth (Phone Edison 9581) supplies Boston Products to Fort Worth and West Texas grain, flour, meat-packing firms. Known as "Your Friendly Distributor," he offers expert technical assistance and courteous service.

* Norman J. Learned, LeValley-McLeod, Inc., 215-221 E. Church St., Elmira (Phone Elmira 6166) serves central New York via branches in Schenectady, Olean, Binghamton, Syracuse—in addition to Elmira office. This 40-year-old company has supplied customers with Boston products since 1934.

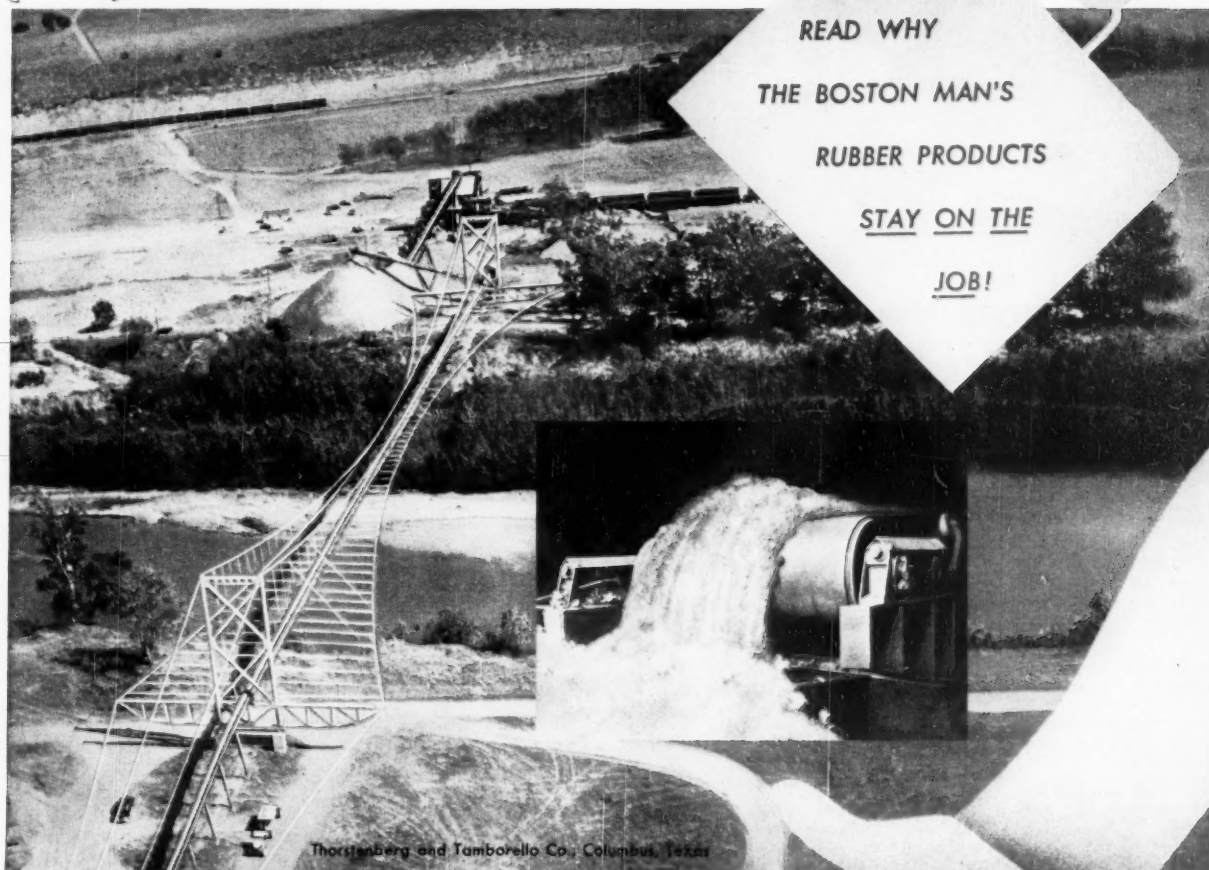
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there is renewed interest in break-even point studies throughout our organization. We would appreciate learning whether you have published any more recent articles on the break-even chart. . . .

John H. Redmond
Asst. Production Mgr.
Koppers Co., Inc.

The fourteen ratios, compiled by Mr. Foulke, are an annual feature of this magazine and provide bases for the comparison of business operations. A booklet containing the latest ratios, called "An Inquiry into the Purpose of the Production of Wealth," may be obtained upon request.—Ed.

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John Hildreth
Editor

Kaiser Publications

Requests to reprint this piece still occasionally come to us. The piece, originally entitled "An Executive Has Nothing to Do," appeared in

the Letters to the Editor column in the July 1951 issue of "Dun's Review." A research project, aided by our readers, attributed the article to F. F. Beirne, columnist of the "Baltimore Sun." To the best of our knowledge, it first appeared in "Advertising Age" in 1933.—Ed.

FAN MAIL

Atlanta, Ga.

Dear Sir:

As soon as I heard that Dun's Review was merging with Modern Industry I began to look forward to the first issue. You must be proud of a job well done. . . .

Otto Orkin

President

Orkin Exterminating Co., Inc.

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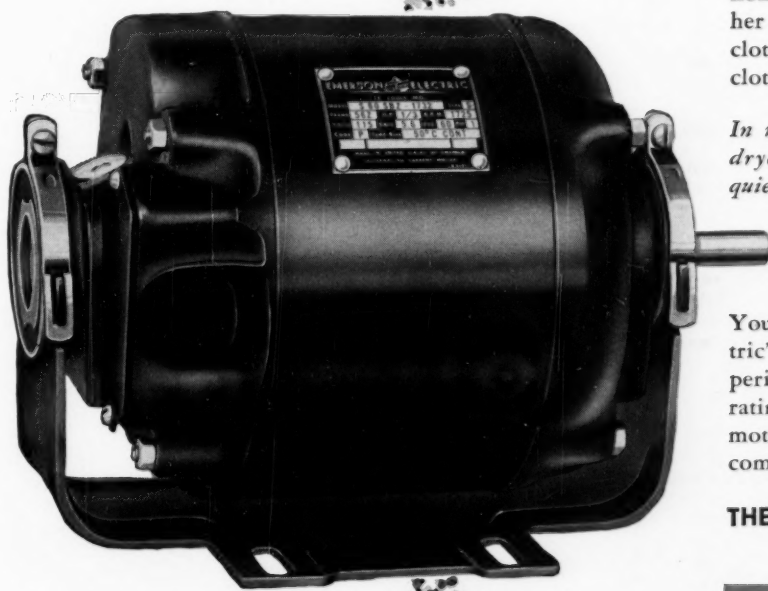
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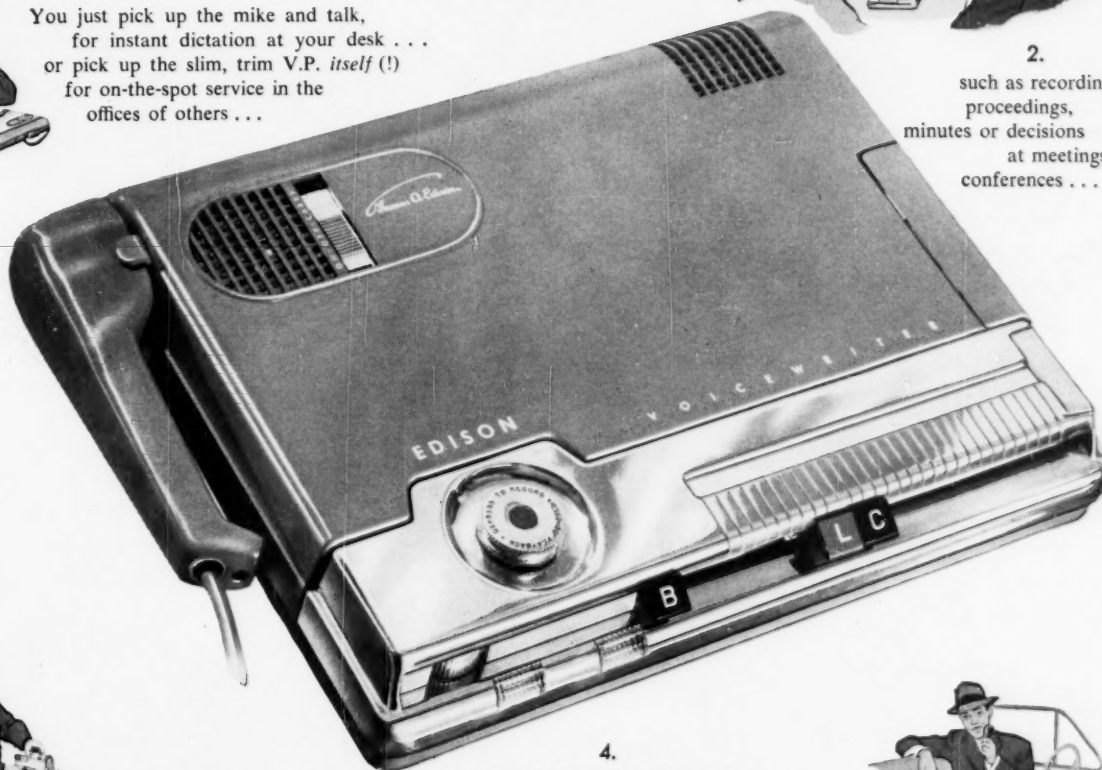
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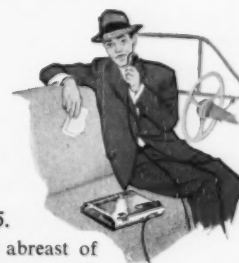
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Production management, as the term is commonly understood, is not our concern in this series—just as we are not concerned with the management of any other function, be it selling, finance, engineering, or investment. But the principles of production must be a serious concern of top management in any business that produces physical goods. For in every such business the ability to attain goals of business performance and business results (outlined in previous articles) depends on the ability to produce physically—whether in the required volume, at the required price, of the required quality, or with the required flexibility of production. To put it the other way around, the ability of production to supply the physical goods has to be taken into account when setting business objectives.

PRINCIPLES OF PRODUCTION

PART III OF

The Practise of Management

PETER F. DRUCKER

MANAGEMENT'S JOB IS ALWAYS TO PUSH BACK THE LIMITATIONS SET ON BUSINESS POSSIBILITIES BY THE HARD REALITY OF PHYSICAL-PRODUCTION FACTS; AND AT THE SAME TIME SO TO MANAGE ITS BUSINESS AS TO CONVERT THESE PHYSICAL LIMITATIONS INTO OPPORTUNITIES FOR BETTER BUSINESS PERFORMANCE AND BETTER BUSINESS RESULTS.

There is, of course, nothing new in this. But traditionally management reacts to the physical limitation that production sets to the business by putting pressure on its manufacturing function. There is no area in which "management by drives" is as common. And production people themselves see the answer in a number of techniques and tools, ranging from machine design to industrial engineering. Neither, however, is the key.

To push back the physical limitations or to convert them into opportunities both require, first, that management understand what system of production its operations require and what the principles of the system are. Then it must apply these principles consistently and thoroughly.

Production is not the application of tools to work. It is the application of logic to work. And the more clearly, the more consistently, the more rationally the appropriate logic is applied, the less of a limitation and the more of an opportunity production will become.

There is an even more important reason for analyzing the principles of production. Each system of production makes demands of its own on the management of the business. Each requires different competence, different skill, and different management performance. These demands are not necessarily higher, just as non-Euclidian geometry is not necessarily "higher" than Euclidian geometry; but they are different. And unless management understands the demands its system of production makes on it and the business, it will not manage well.

This is particularly important to-day, when many businesses are moving from one system of production into another. If this move be considered a mere matter of machines, techniques, and gadgets, it will result inevitably in management's reaping only the difficulties of the new system. To reap its benefits, a management must realize that it is adopting a new system with new principles, and must understand what these are.

The systems of production and their principles primarily pertain to the production of physical goods; that is, to manufacturing. They have all been developed in manufacturing. But, in some form or other, they have application beyond manufacturing, to the production or processing of non-physical things, such as the work of a clerical force, for instance, or large-scale research. We shall, however, confine this discussion to manufacturing as such.

At this point, it should be of help to consider the findings of this article under the following five headings:

ONE: THERE ARE THREE BASIC SYSTEMS OF INDUSTRIAL PRODUCTION KNOWN TO US SO FAR. THEY ARE UNIQUE-PRODUCT PRODUCTION, MASS-PRODUCTION, AND PROCESS-PRODUCTION.

We may, perhaps, count even four systems. For mass-production "old style," which is the production of uniform products, is different from mass-production "new style," which manufactures uniform parts but assembles them into diversified products.

TWO: Each of these systems, as we shall see upon examining them, has its own basic principles; and each makes specific demands on management competence and performance.

THREE: There are two general rules concerning the way in which we advance production performance and push back product limitations.

The first is that we push back the limitations of production the further and the faster, the more consistently and the more thoroughly we apply the principles pertaining to the system of production used. Indeed, this gives better results than all the individual skills and techniques of so-called production management.

The second general rule is that the systems themselves represent a distinct order of advance—with unique-product production the least advanced, process-production the most advanced. They represent different stages of our control over physical limitations. This does not mean that opportunities for advance usually lie in moving from the unique-product system to the process-production system. The systems have their own specific applications, requirements, and limitations. But it does mean that we advance to the extent to which we can organize parts of production on the principles of a more advanced system and learn, at the same time, how to harmonize the two systems within the business.

FOUR: There are also two general rules concerning the demands each system of production makes on management competence and management performance.

The first one is that the systems differ not just in the difficulty of the demands they make on management competence and performance; each demands competence in a new field and a different order of performance. Management, in moving from one system to another, has to learn to do new things rather than learn to do the old things better.

The second rule is that the more we succeed in consistently applying the principles of each system, the easier it becomes for management to satisfy the demands of the system on its competence and performance.

FIVE: Finally, as a general observation, we can say that each management has to meet the demands of the system it ought to have according to the nature of its product and production, rather than those of the system it actually does have. Being unable or unwilling to apply what would be the most appropriate system only results in lack of performance. It does not result in lower demands on management. Indeed, it inevitably increases the difficulties of managing the business.

One case in point is basic steel-making. By all logic it should be organized as process-production. Instead, its "batch process" is still primarily a unique-product system. There is probably no industry that has worked harder or more successfully on perfecting a unique-product system. Yet, the problems the managements of basic-steel companies face are all process-production problems: high fixed-capital requirements and the need for continuous production resulting together in high break-even

points . . . the need for a high and constant level of business . . . the need to make basic investment decisions for a very long time ahead, and so on. At the same time, the basic-steel industry enjoys few, if any, of the benefits of process-production.

It is, in conclusion, of major importance in managing a business (1) to know which system applies; (2) to carry its principles through as far as possible; (3) to find out which parts of production can be organized in a more advanced system and to organize them accordingly; (4) to know what demands each system makes on management competence and performance.

And where, as in the basic-steel industry, historical and technological obstacles have barred the organization of production in the appropriate system, it is a major challenge to management to work systematically on overcoming these obstacles. Indeed, emphasis in such a situation should not be given to working a little more effectively what is basically the wrong system. I am firmly convinced that a great deal of the tremendous technological effort in the steel industry has been misdirected. Focused on improving the traditional process, it will turn out to have been wasted when steel-making will finally become process-production—which is in all probability not too far off any more. For the wrong system means paying all the penalties of the demands the more advanced system makes on management without having the wherewithal for them. The wherewithal can come only out of the increased ability to produce that the more advanced system provides.

What then, concretely, are these three systems of production and their principles?

THE FIRST BASIC SYSTEM OF INDUSTRIAL PRODUCTION, UNIQUE-PRODUCT PRODUCTION, IS THAT IN WHICH THE PRODUCT, SO TO SPEAK, IS IN A CLASS BY ITSELF.

Strictly speaking, of course, there is no such thing as manufacturing unique products; they are produced only by the artist. But building a battleship or a skyscraper comes very close to turning out a unique product. So does the building of a house and, in most cases, "batch production" in a job shop.

Under this production system, the basic principle is organization by the homogeneous stages into which the work can be divided.

In the building of the normal one-family house, to take one of the simplest examples, we can distinguish four such stages. First, the digging of the foundation and the pouring of the concrete for the foundation walls and the basement floor. Second, putting up frame and roof. Third, the installation of plumbing and wiring equipment in the inside walls. And, finally, interior finishing. What makes each of these a definite stage is that work on the house can stop after each of them without any damage, even for a fairly long time. On the other hand, within each stage, work has to be carried right through, or else what has been done already will be damaged and may even have to be done over again. Also, each stage can be varied from house to house without too much trouble of adjustment and without delaying the next stage. Each of these stages, by the inner logic of the product (the house) is an entity in itself.

The most effective method of unique-product production is, therefore, the organization of the work by homogeneous stages. This is something radically different from craft organization, in which a carpenter does all the carpentry work, for example.

Properly organized unique-product organization does not go by craft skills but by stage skills. The model is the telephone installation man. He is no highly skilled electrician, carpenter, plumber, or roofer, yet he installs electric wiring, saws through boards, makes a ground connection, and can take up a roof shingle and replace it. In other words, either every man engaged in the work of a particular stage must be able to do everything needed within that stage, or there must be an integrated team that contains within itself all the stage-skills needed. But neither individual nor team needs skill that goes beyond the requirement of the particular stage.

This is in effect very largely how we succeeded in building ships at such a tremendous rate during wartime. It was not "mass-production" that did the trick. It was the division of the work in homogeneous stages; the systematic organization of the work group within each stage for the specific requirements of the stage; and the systematic training of a large number of people to make them able to do all the work required within one stage.

THE SECOND BASIC SYSTEM, MASS-PRODUCTION, IS THE ASSEMBLY OF VARIED PRODUCTS, IN LARGE NUMBER OR SMALL, OUT OF UNIFORM AND STANDARDIZED PARTS.

In the manufacturing industry to-day, Mass-production is the dominant system. With good reason, it is considered to be the typical system of an industrial society, though process-production may soon become a strong contender for the spot in the limelight.

So universal is mass-production to-day that it might be assumed that we know all about it, certainly that we know all about its basic principles. This is, however, far from true. After 40 years of mass-production we are only now beginning to understand what we are doing—or rather what we should be doing. The reason for this is that the same man who ushered in the system as a universal system also misunderstood and misapplied it himself, as is so often the fate of the real pioneer.

When Henry Ford said that "the customer can have any color car as long as it's black," he was not joking. He really meant to express the essence of mass-production as being the production of uniform products in large quantity. Of course he knew that it would have been the easiest thing in the world to give his customer a choice of colors; the painter at the end of the assembly line would simply have needed three or four spray guns instead of one. But he also realized, rightly, that once you make any concession to diversity, the uniformity of the product will soon be gone altogether. And to him the uniformity of the product was the key to mass-production.

However, this mass-production "old style" is a misunderstanding. It is the essence of mass-production that it can produce greater diversity of products than any method of production ever designed by man. It does not rest on uniform *products*. It rests on uniform *parts*, produced for assembly into a very large variety of different products.

The model of mass-production, therefore, is not the old Ford assembly line. It is rather the farm-equipment plant in Southern California that manufactures specialized cultivating machines for large-scale farming on irrigated land.

Every one of the manufacturer's designs is unique; for instance, a machine that, with various attachments, performs all

operations needed in large-scale cucumber growing, from preparing hills in the Spring to harvesting cucumbers at the right stage of growth for pickling. He rarely makes more than one of each machine at a time; indeed, for some of them, the cucumber machine for instance, one machine every ten years or so is all that could possibly be sold.

Yet every one of this manufacturer's more than 700 different machines is made up entirely of mass-produced, uniform, standardized parts; parts which someone in the American economy turns out by the thousands, if not by the millions. And his biggest job is not to solve the problem of designing a machine that will find and identify cucumbers of the right ripeness for pickling, while leaving all the others undisturbed. It is to find a mass-producer of a part that, though originally designed for an entirely different purpose, will, when put on the cucumber cultivator, do whatever is needed.

The specific techniques for the application of this principle begin with the systematic analysis of the products to find the pattern that underlies their multiplicity. Then this pattern can be organized so that the minimum number of parts manufactured will make possible the assembly of the maximum number of products. The burden of diversity, in other words, is taken out of manufacturing and shifted to assembly.

One illustration. A maker of electric products ten years ago produced 3,400 different end-products, each composed of 40 to 60 parts. The analysis of this line of products first made it possible to reduce the number by about one-third (1,200 products were found to be duplications). The analysis still left 2,200 different products. And to make them the company was manufacturing or buying well over 100,000 different parts.

After the products had been analyzed, their pattern established, and the parts determined, it was found that all the 2,200 different products fell into four categories according to the voltage of the current they were supposed to carry. Only 40 products did not fit into this pattern and had to be considered exceptions. This made it possible to cut down the number of parts for all the other products. Then the number of variations for each part could be cut down to the minimum. Only one part requires as many as eleven variations to-day; the average is five variations per part.

As a result, production in this company is production of parts—even though the final products are widely different. The burden of variety is thrown on assembly. The parts themselves can be produced continuously against a schedule determined by the size of the inventory rather than by customer orders. And the size of the inventory, again, is determined by the time needed for assembly and delivery.

This new concept of mass-production as the manufacturing of uniform parts and their assembly into non-uniform products is the most immediately useful production concept that we have in our possession to-day.

Yet it is understood only by a minority of production people, and applied only in a fairly small number of companies. Also, the techniques and methods to take full advantage of the concept have only now become available. It is, above all, Operations Research that allows us to make the complicated analyses of products and parts that are necessary to put the mass-production principle into effect.

But wherever this new principle has actually been applied, cost reductions have been spectacular—sometimes reaching 50 or 60 per cent. Nor is the application of this principle con-

fined to the production process itself. By making it possible to keep the inventory in parts, instead of in finished products, it often enables a company to cut its inventory cost and yet to give the customer better service.

This new principle does achieve, in other words, what Henry Ford was after: the continuous production of uniform things without interruption because of customer orders, because of the need to change tools, styles, or models. But it does this not by producing uniform products, but by producing standardized parts. Uniformity in manufacturing is coupled with diversity in assembly.

Obviously, the application of the mass-production principle, as sketched out in our example, is not simple. It goes well beyond manufacturing, and requires a lot of hard and extensive work on the part of the marketing people as well as on the part of engineering. It carries with it definite risks, since it must be based on a fairly long production cycle at a constant rate of machine utilization (three, six, in some cases eighteen months). It requires new accounting tools, which give us cost data for the process over the production cycle; the traditional "costs per unit" become meaningless unless projected on a given production rate over a given time.

The new concept of mass-production isn't going to be put in overnight. The development sketched out above actually took all of three years. But so great are the savings resulting from application of the principle that the mentioned company recovered the expense of what amounted to complete redesign of its products and its manufacturing facilities in less than two years.

THE THIRD SYSTEM OF PRODUCTION, FINALLY, IS PROCESS-PRODUCTION. HERE THE PROCESS DETERMINES WHAT THE FINAL PRODUCTS ARE TO BE; PROCESS AND PRODUCT BECOME ONE.

The basic principles are, first, automatic materials-handling and, second, "feed back," or self-control of the process by the quality of its own product. These two together are what we usually mean by "automation."

The oldest example of process industries are oil refineries. The end-products a refinery will obtain out of crude oil are given by the process it uses. It can produce only the oil distillates for which it is built and only in a definite proportion. If new distillates have to be added, or if the proportion between the various distillates is to be changed significantly, the refinery has to be rebuilt. Once a shipment of crude oil is started through the refinery it cannot be stopped till the final products come

out at the other end; and the same final products will always come out at the other end.

Process-production is the rule in the chemical industries. It is, with minor variations, the basic system of a milk-processing plant or a plate-glass plant. In short, it is almost always the prevailing system where the raw material determines what the end-products can be.

THE FIRST DEMAND MANAGEMENT HAS TO MAKE ON THOSE RESPONSIBLE FOR PRODUCTION IS THAT THEY KNOW WHAT SYSTEM OF PRODUCTION APPLIES; THE SECOND, THAT THEY APPLY THE PRINCIPLES OF THE APPROPRIATE SYSTEM CONSISTENTLY, THOROUGHLY, AND TO THE LIMIT.

These are the first and decisive steps in the pushing back of the limitations production sets to business performance and business results. And it is only when these steps have been taken that the next one can be made: the organization of parts of production on the basis of a more advanced system.

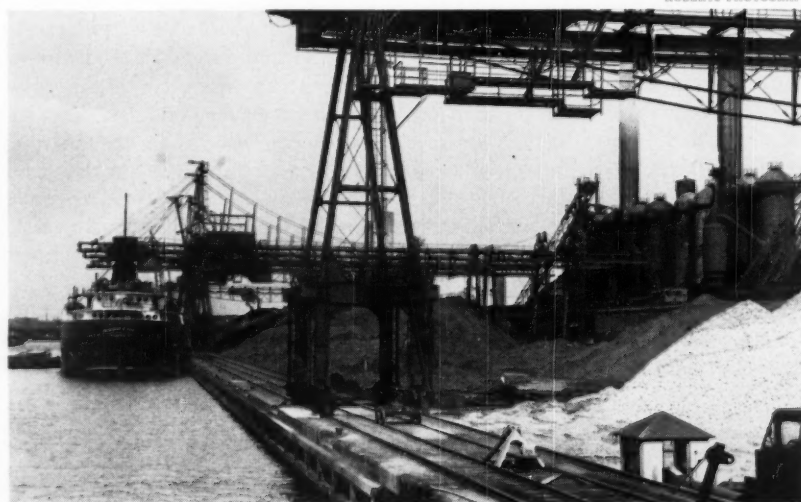
The results of an attempt to do this without first analyzing the production process and organizing it properly, are shown by the failure of the prefabricated house. It would seem the most obvious thing in the world to build a house from prefabricated, standardized parts. Yet the attempt, when made after World War II, proved abortive.

The reason was that mass-production of uniform, standardized parts was superimposed on a unique-product system that was badly disorganized. Instead of homogeneous stages, the organizing principle was craft-organization. And the use of prefabricated parts in a craft-system proved more expensive and slower than the old methods. When, however, the Levitts in Long Island organized home building by homogeneous stages, they could, all of a sudden, use uniform, standardized prefabricated parts with conspicuous savings in time and money.

Similarly, standardized parts brought no conspicuous savings in a locomotive repair shop as long as it was craft-organized. When the work was organized in "teams," each containing all the craft skills needed in a particular stage of the work—when, in other words, craft-organization was replaced by stage-organization—standardized parts brought tremendous savings, with the whole operation taking on major characteristics of mass-production.

This is of particular importance in mass-production industry, meaning industry that produces diversified products. For there the great opportunity to push back the limitations of production

Production problems are manifold in the hard goods industries. The steel mills must get the raw material and transform it into finished products for the hungry metal-using companies. All along the production line, physical limitations impose the need for quick and far-reaching solutions. The desire is for more opportunity, fewer obstacles.



ROBERTS PHOTOGRAPH

lies to-day in the application of automation. The opportunity can be realized, however, only if mass-production is first properly organized, if it is first organized as the manufacture of a minimum number of uniform parts and their assembly into a maximum number of diversified products.

The electrical-instrument maker mentioned above could fairly easily put his production of parts on an automatic basis, approaching closely the continuous flow and automatic self-control of an oil refinery or a plate-glass plant.

My favorite example is that of a shirt manufacturer who was able to introduce a considerable degree of automation as a result of the proper mass-production analysis of his products.

He faced the problem of an almost infinite variety of sizes, styles, and colors, seemingly making impossible any production planning. He found, however, first, that three-quarters of his production was in white shirts; and there were only three basic qualities of fabric used in making white shirts, and in fairly easily predictable proportions. He then found that all shirts are made of seven parts: front, back, shoulder yoke, collar, right sleeve, left sleeve, cuffs. Size adjustments could all be made in assembly (sewing together a finished shirt) by cutting off length or width; and it was much cheaper to sacrifice a few inches of material than to turn out parts of different size. Style adjustments could all be made in assembly by using different collars, different cuffs, and different buttons.

In short, he found that all parts except collars and cuffs could be produced, in the three grades of cloth without any variation, with adjustment left to assembly. Cuffs require three variations; collars, six. Only collars, which are neither difficult nor costly, are, therefore, made according to customers' orders to-day. The rest is in continuous production based on inventory standards.

As a result, a job that 20 years ago was still almost entirely done by hand on individual sewing machines is now done as a continuous automatic process. There has been a sharp cut in cost, a tremendous increase in the variety of final products (sizes and styles) and greater customer satisfaction.

BUT MANAGEMENT MUST ALSO KNOW WHAT THE VARIOUS SYSTEMS OF PRODUCTION DEMAND IN THE WAY OF MANAGEMENT COMPETENCE AND PERFORMANCE.

In unique-product production management's first job, it might be said, is to get an order. In mass-production the job is to build an effective distributive organization and to educate the customer to adapt his wants to the range of production variety. In

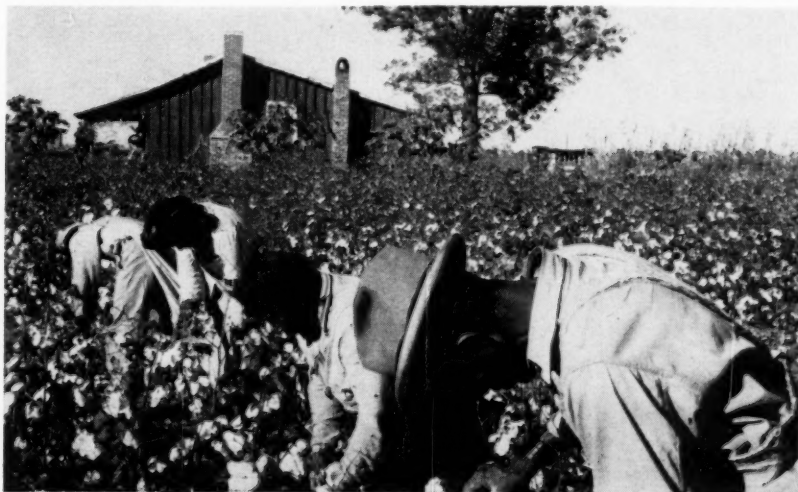
process-production it is to create, maintain, and expand a market and to find new markets. To distribute kerosene lamps free to the Chinese peasants to create a market for kerosene—the famous Standard Oil story of 50 years ago—is a good example of what this means.

For unique-product production has high costs for the individual product but great flexibility in the productive plant. Mass-production "new style" has the ability to supply wants cheaply and within a wide and flexible range of products. But it requires much higher capital investment than unique-product production and a much higher level of continuous activity. It carries with it real inventory risks. And it needs a distributive organization that can sell continuously rather than one that goes after a specialized, individual order. Process-production, finally, requires the highest capital investment (in absolute dollars) and continuous operations. Also, as products are determined by the process, new products will, therefore, be created by changes in the process, even if there is no use of them in the existing market—a common occurrence in the chemical industry. Management must, therefore, develop a steady market. Indeed, under automation it will become a major responsibility of management, both in mass-production and in process-production, to maintain a steady level of economic activity and to prevent extreme economic fluctuations, whether of boom or of depression. At the same time management will have to find markets for new products created in the process.

Similarly, under the unique product system the time span of basic decisions is fairly short. Under mass-production it becomes much longer; the distributive organization, for instance, may take ten years to build up, as the Kaiser-Frazer Automobile Company found out after World War II. But under a process system of production decisions are being made for an even longer future. That is partly because, once built, the production facilities are fairly inflexible and can be changed only at major expense, partly because the total investment is usually larger. Also the development of a market is very long-range. The marketing systems of the big oil companies are good examples. The more advanced the production organization, the more important is decision-making for the future.

Each system requires different management skills and a different organization of management. Unique-product production requires people good at a technical function. Mass-production, "old style" and "new," requires trained management, especially management trained in analytical thinking, in scheduling, and in planning. "New style" mass-production, as does process-production, also requires management trained in the methods of problem analysis and decision-making.

WILLIAMS PHOTOGRAPH



Production limitations apply to manual labor and mechanization, to man and machine. The many steps from gathering cotton under a hot Southern sun to selling the finished material over the counter, mean constant attention to all details. In this, soft goods production is much like that of hard goods, but the approaches may be vastly different.

Under unique-product production management can be highly centralized at the top. And co-ordination between the various functions is needed primarily at the top. Selling, design and engineering, and production can be quite distinct and separate, need to come together only where "company policy" is being determined. It is this pattern of unique-product production that is still largely assumed in our popular organization theory—even though unique-product production is the exception rather than the rule in American industry to-day.

Mass-production "old style" can still maintain this pattern, though with considerable difficulty and at a fairly high price in efficiency and effectiveness. It does better, however, with a pattern that establishes centers of decision-making and integration much further down. For it requires close co-ordination and co-operation between the engineers who design the product, the production people who have to make it, and the sales people who have to market it.

In both mass-production "new style" and process-production, functional centralization is impossible. They require the very closest co-operation of people from all functions in every stage. They actually require that design, production, and marketing be tackled simultaneously by a team representing all three; these activities can no longer be organized in stages but run together. Also decisions affecting the business as a whole have to be taken at a very low level—sometimes at a level not even considered "management" to-day.

There are significant differences with respect to the work force and its management. Unique-product production can usually adjust its work force to economic fluctuations, in bad times keeping only foremen and a nucleus of the most highly skilled. It can find the other skills it needs on the labor market as a rule. But precisely because they have no skill, the workers in "old style" mass-production must increasingly demand employment stability from the enterprise. And in any business that uses automation—whether mass-production "new style" or process-production—the enterprise itself must make real efforts to stabilize employment. Because the work force needed for automation consists largely of people trained both in skill and in theoretical understanding. Such a work force not only represents much too great an investment to be disbanded, but it normally can only be created within the company and in years of effort. It is neither accident nor philanthropy that the oil companies (typical process businesses) have tried so hard to keep employment steady.

Under automation there are actually no "workers," so to speak. I do not believe that automation cuts down the total number of people employed; just as mass-production did not do so. All that we can see thus far in the process industries shows clearly that the total work force does not shrink. On the contrary, it tends to expand. But automation requires totally different workers who are actually much closer to the professional and technical specialist than to to-day's production worker. And this creates a problem of managing people that is quite different from any "personnel-management problem" business men are normally familiar with—and much tougher.

I HAVE LEARNED TO BE EXTREMELY SKEPTICAL OF ANY PREDICTION OF IMMINENT "REVOLUTION" OR OF "SWEEPING CHANGES" IN TECHNOLOGY OR BUSINESS ORGANIZATION. BUT THAT DOES NOT RULE OUT WHAT I BELIEVE TO BE THE MOST PROMISING OF OPPORTUNITIES TO IMPROVE THE PERFORMANCE AND RESULTS OF BUSINESS ENTERPRISE.

To begin with, I know that to-day, 200 years since the first Industrial Revolution, there still flourishes in our midst a large industry organized on the "putting out" system of production, which, the textbooks tell us, had become obsolete by 1750. I refer to the New York garment industry. And it would not be at all difficult to find other examples of such "living ancestors" who are blissfully unaware of their having died a long time ago.

Certainly the obstacles to the automation revolution are great. Above all, there is the lack of men properly trained in the new concepts and skills. Also it has been estimated that only one-tenth of America's industries could really benefit from automation at the present state of its technology. Even a real automation revolution would be a gradual and highly uneven process, with some industries still untouched by it after decades.

Still, revolutions do happen. More important, even without the slightest sign of any revolution actually going on, the most significant, the most promising, and the most continuous opportunity to improve the performance and results of business enterprise, by pushing back the limitations of production, will not lie, for decades to come, in new machines or new processes.

The opportunity will lie, first, in the consistent application of the new mass-production principle of manufacture of a minimum number of uniform, standard parts and their assembly into a large variety of finished products.

It will lie, secondly, in the application of the principles of automation: automatic materials handling and automatic self-control of the productive process by its product through "feed back."

Of those two points there can be little doubt.

But this will mean no change in the analysis presented here on the management of a business, or in the conclusions therefrom. It will still be necessary that management analyze what business their business is in, and what business it should be in, as was discussed in the previous installment. Management will have to develop clear objectives for business performance and business results in respect to market-standing, innovation, productivity, and profitability (including both organization objectives and a capital-investment policy). Management will have to acquire methods to make possible long-term decisions. Management will have to use the objectives it has worked out to organize functions and activities for over-all business performance and over-all business results.

It will only have to do all these things better. And it will, in addition, have to learn what the principles of the new systems of production are and what demands they make on management.

The fourth article in this series by Peter F. Drucker will appear in the May issue. In this article, Mr. Drucker will discuss the spirit of an organization—that intangible element that frequently distinguishes the great from the merely adequate organization. This, and the other articles in the series, are from Mr. Drucker's forthcoming book, "The Practice of Management."

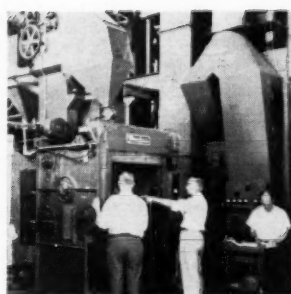
SAMPLES: *Do they give your products a fair trial?*

ANNESTA R. GARDNER

Industrial Editor

Samples can make or break a new product; help or hinder

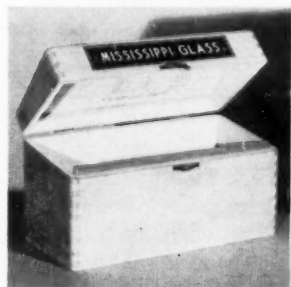
an old one. Here's how to choose them wisely and use them well.



INDUSTRIAL EQUIPMENT



HOUSEHOLD PRODUCTS



GLASS



CHEMICALS

THE WAY some companies handle samples, you'd think they were giving out competitors' products.

Materials are sent out in ugly, ill-adapted containers; technical literature is inadequate; often even the order blank is omitted.

Yet, samples can be a company's best ambassadors, and its salesmen's best friends. They can help introduce new products and find new markets for older ones. They can demonstrate—far more clearly than a dictionary full of words—the capabilities of new machines.

But, to achieve these goals, samples have to be chosen and used with real care.

At least four big problems face the company planning to use samples:

First, make sure that the right type of material gets to the right person in usable condition and in sufficient quantity to permit a fair test.

Second, make sure that it *is* tested.

Third, secure the order.

Fourth, do all this at reasonable cost.

None of these problems is easy to solve.

For instance, unless a company makes only one type and grade of product, there is always a danger that the prospective user will get the wrong one—and condemn the product itself because "it doesn't work."

Take felt as an example. A women's skirt maker, noting the trend to felt skirts, might well write for "samples of felt." He knows what he wants. But felt makers produce many types and grades of material: some for mounting machines, others for use in papermaking, still others for hats and gaskets. Unless the inquiry is handled by someone who is familiar with the entire line, it is only too likely that the wrong type will be sent—and a sale will die a-borning.

Sample size is important, too; and not easy to determine. The quality to be demonstrated, type of customer, and way the sample will be used, all enter into the decision.

For instance, an ounce or two of material might be more than enough to provide a fair trial for a fine chemical. But a two weeks' supply might be needed for a new metal-cleaner.

As another example, cigarette makers hand out miniature cellophane-wrapped packages of four or five cigarettes. But a cellophane supplier devised an attention-getting sample that did a fine job of demonstrating the qualities of its product by enclosing a single cigarette in a pull-tape cellophane wrapper. Each picked the quantity that would show off its product best.

The way the sample is used also has a lot to do with its size. For instance, Alcoa's Chemical Division provides trays of alumina balls at trade shows (photograph, lower left) so visitors can see what they look like and take a few home as a reminder. But its regular samples—not distributed at trade shows—are in specially prepared one and two-pound containers.

The relationship between type of customer and size of samples is pointed up by Benton C. Watts, vice-president of Mississippi Glass Company. In answer to casual inquiries, Mississippi sends out small, two-by-three-inch samples. Architects, engineers, and jobbers get four-by-five-inch panels. But government inquiries usually must be answered by plates measuring six-by-twelve—to meet specification requirements.

One of the toughest of all problems connected with samples is making sure they're tested. It would seem that a person who asked for a sample would try it out when he got it—or that mere curiosity would lead a housewife to open a sample packet. But that is not the case. Research directors are busy; housewives may be suspicious; production managers' plans may have changed. Samples often stay on the shelf far too long.

There is no simple solution to this problem. But a number of things can be done to help arouse interest and get the test under way.

Often overlooked, for instance, is the importance of telling the person who gets a sample exactly *why* he is getting it. As Paul R. Larimer of Ansul Chemical Company points out, even when the recipient initiated the inquiry, it's a

Text continues on page 48

Photographs on page 46



PAINT



INDUSTRIAL CLEANSERS



PAPER



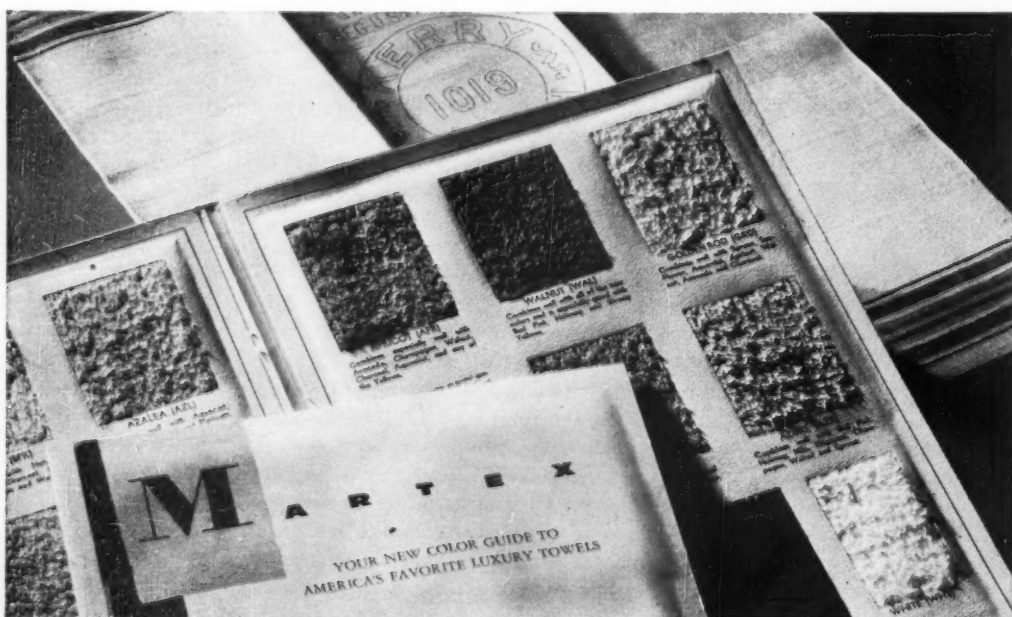
ELECTRONIC COMPONENTS



Standardized staple products like cotton duck are kept on file over the years. Wellington Sears furnishes good-sized swatches (lower row), head ends (upper left), bound sample books (right).



Consumer fads and fashions call for many—and ever-changing—colors and textures, so finished goods samples must be low in cost. Color card (lower left) is typical. Others are for special uses.



Everyone uses towels—and samples would certainly be popular. But Wellington Sears salesmen find it's better just to show the finished product, leave behind head ends and color cards like these.

Multiple samples meet marketing needs

Pound for pound, samples are most companies' most expensive products—even when a nominal charge is made for them. When they're distributed free of charge, as is generally the case, the problem of keeping over-all costs down becomes acute. On the opposite page, packaging problems are discussed. The photographs here show how one textile company—Wellington Sears, which sells both industrial and consumer fabrics—designs the samples themselves to meet customer needs without breaking the company bank.

For each of the three types of products shown (gray, or unfinished goods; finished materials; and a consumer item), the basic, and most widely distributed samples, are small swatches. These are used primarily to indicate texture and color. Swatches may be mounted on color cards; or, in somewhat larger size, sent out individually. When used individually, they are identified by a pin ticket or stencil, and are inserted in transparent protective envelopes.

For distribution to those who are already interested in the material, and are anxious to test drape and "hand," head ends are used. These are strips cut across the full width of the fabric and have the advantage of indicating this dimension.

The more-expensive sample books and card portfolios are for customers who have a continuing reference need—generally jobbers and large-quantity users.

The selection of sample types for each type of product is governed by the product's general utility, its rate of change, and its pattern of distribution.

Cotton duck (top photograph) is a staple item; samples are kept on file for a number of years. So, most users get thick, bound sample books of the type pictured.

Slub poplin, on the other hand, is a fashion item—subject to frequent change. Most inquiries, therefore, are answered with swatches and head ends. On materials of this type, distribution of the more-expensive books and portfolios is carefully controlled.

Even more closely held are samples of such consumer products as towels. These are displayed by salesmen, but are rarely handed out.

Taken all together, this array of samples may seem almost frightening in its complexity, but close study of the individual items shows not only that each is designed to fill a particular need, but also that use of multiple samples often makes it possible to meet marketing needs without risking excessive cost.

Selecting packages that sell and save

A potential customer whose first burst of enthusiasm is met by a limp, bedraggled, or broken sample may never again be enticed into the fold.

Yet, packaging of samples is, at best, a bothersome problem, and it's natural to try to cut corners.

Nevertheless, a good many companies are finding that it is possible to provide attractive, clearly labeled, protective containers at reasonable cost. The pictures here show three examples on how it can be done.

In general, as noted in the chart on page 50, the package should be durable, and large enough so it won't get lost. It should provide company as well as product identification. And it must be easy to open. A small point? Not at all.

Here's just one example of how a good sampling program can be wrecked by such a seemingly minor detail:

Not long ago, a company in the consumer field mailed sample bottles of its newest product to a large group of householders. Dealers were alerted, and store shelves were stocked to meet the demand the company was sure would follow.

Company executives, satisfied that no stone had been left unturned, sat back to await reports of booming sales.

There weren't any.

What had happened? Were the packages actually mailed? Did they arrive in good condition? Yes, they did.

But there *was* something wrong. And the company finally found the answer: The sample-packaging machine had been poorly adjusted. It spun the covers on so tightly that even Samson could not have loosened them. The housewives had struggled and pounded—and had finally given up. They never had a chance to see what the product was like.

A simple adjustment to the machine; a new set of samples; and the product began to sell merrily.

This was, perhaps, an unusual case, but examples of damaged packages and broken or contaminated samples are far from uncommon. That's why, in many cases, it may pay to design a special type of package for sample products. If this package is one that cannot be handled on the regular packaging machines, it may be possible, and more economical, to have the packing done by a contract packaging firm.

But, whatever the problem, it's a smart company that takes the time and trouble to select the package wisely, test it carefully—and makes sure its product gets a fair trial.

Story continues on page 48



One package serves many products, can be ordered in quantity, through simple device of window in top flap and insert card that gives specific information on type of "Scotch" brand tape enclosed.



Attractive labels turn plain fiberboard containers into sales "plus" for Marathon Corporation's ever-growing family of industrial chemicals, which already includes dispersants, stabilizers, and tackifiers.



Plastic bag will keep Pennsalt product miniature and order card (center) from getting lost. Bag can also be used for envelope-packed samples like the manual cleanser packet pictured on page 45.

SAMPLES: CONTINUED

good idea to mention that fact in a covering letter. Tell him, Larimer suggests, "This is the sample you requested." He may have forgotten all about it—and may toss the sample aside unless you remind him.

The biggest problem, of course, is getting the order. At the very least, an order blank should be enclosed with every sample. It's surprising how many are sent out into the world without one. Then, advertising, direct mail, and personal calls should work together to help make the sampling program succeed.

Running through all of these problems—and weighing heavily in their solution—is the question of cost. Obviously, a sample must be high-

quality material, carefully handled and safely packed. But, sample production is small-lot production, and that is an expensive matter—even when the product or material itself is relatively low in cost. When the product has a big price tag; when it is of a type that is desirable for home as well as industrial use; or when a large quantity is required for a fair test, the cost problem becomes serious indeed.

It is possible, obviously, to limit sample size and cut down on distribution and technical service. But this type of penny-watching may defeat the whole purpose of sampling.

A better way, several companies are finding, is to charge a reasonable price (usually cost or slightly below) for samples and sample kits.

Carboloy Department of General Electric, for

example, finds a number of advantages in this procedure. Carboloy introduced two magnet kits two years ago, and now also offers one of its new material, chrome carbide. The magnet kits are priced at \$10 and \$15; the chrome carbide at \$10.75.

The charge makes it possible to supply a much larger sample and to provide better technical data service—including looseleaf data sheets sent at intervals after the original purchase. It also helps to separate the I-like-to-play-with-magnets goats from the potential-user sheep. Furthermore, when the kits were first introduced magnet alloys were under government allocation. The charge helped to limit distribution to those who really needed the materials, and justify their use for sampling purposes.

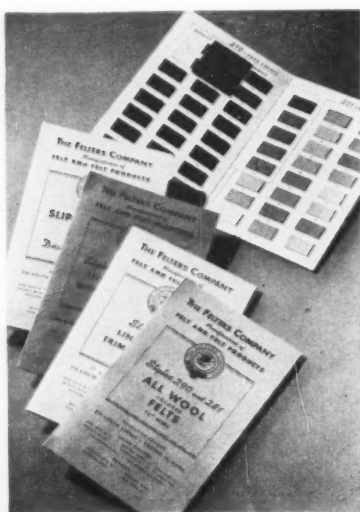
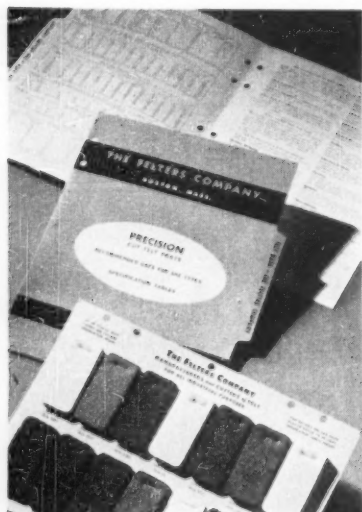
4 sampling problems and how

*Hold high standards of accuracy;
1. but keep costs down*



Color cards must be accurate; may be costly; require plenty of care—and hard work; whether designed to sell paint, as above, or felt, as below.

Difference between industrial and consumer products shows clearly in these
Felters samples. Industrial felts are at left; consumer items at right.



Color cards are a major item in paint sales. But they are useless if they're not entirely accurate. And accuracy is expensive. Paint makers have long struggled with the problem; have never solved it completely; but now have at least two courses open: One, a direct-printing process that deposits a specially prepared lacquer directly on the color card (lacquer is used because it is less likely to be absorbed by the paper than is the paint itself). The other, the slow and time-consuming method of pasting color chips on folders. Pittsburgh Plate Glass uses both; finds the direct-printing process fast and accurate, but economical only for large-volume sample production, as in producing color cards of standard consumer finishes. Color chips are still used for small runs, as in sampling industrial finishes and special coatings. Regardless of volume or type of product, though, PPG emphasizes the need for full technical information. Mixing and application instructions go with all paint samples, and PPG makes sure all its other products—glass, plastics, industrial chemicals—are accompanied by complete data on handling and use.

*Meet needs of a new—but
2. uncertain—market*

For many years, Felters Company has sold felts for industrial use—for machine mountings, gaskets, padding, and packaging—and for a few special consumer items like hats and slippers. Then came a new consumer fad: felt skirts. It was potentially a big market, and, if it lasted, a profitable one. But Felters knew milady's tastes change rapidly. It also knew that skirt makers were used to the comparatively elaborate samples of the textile trade (see page 46). Should it try to emulate the textile firms? That could prove to be a costly experiment if the market was short-lived. Instead, Felters chose a simpler, and a safer, course. Skirt samples were patterned after those already used for hats and slippers—and a close watch is being kept on the fashion trend. If the market looks like a continuing one, special samples will be considered. Pictured for contrast are typical Felters industrial samples. Note that even for this type of product, folders are attractively designed and samples are neatly stapled to insert cards. Note, too, that full technical data, specifications, and suggested applications are printed on the inside of each folder.

Has the price tag deterred potential customers? Carboly thinks not. Few, if any, industrial customers would be personally responsible for the purchase, and \$10 or \$15—as a research charge—is not very much.

Obviously, each type of product requires its own sampling procedure. It is hard to lay down company-wide, much less industry-wide, rules. There are, however, general principles which apply to practically all products.

Pennsylvania Salt Manufacturing Company provides a good case study. Included among its products are: cleaning compounds for dairy use, elemental fluorine for chemical syntheses, and phosphate coatings for use in metalworking.

At Pennsalt, each department establishes its own budget for samples. Generally, this is based

on past experience. Brand-new products, however, are handled by a product development department and get special budgeting.

Industrial sample preparation and packaging are centralized in Pennsalt's Research & Development Division. Work is done on order for the various sales and development groups, and a procedure has been set up to compensate the division for time spent on sample preparation.

Sample-package procurement is also centralized, both to avoid duplication and to permit purchasing in the most economical quantities.

Here, though, the similarities end.

Pennsalt's Dairy Products ("B-K") Department has a definite, clearly defined market—but one that is not easy to reach. This department distributes most of its samples through large

dairies—often at general farm meetings, sometimes by attaching samples to milk cans as they are returned to the farmer. These samples should, therefore, be convenient to handle, and they should somehow stick to the milk can. The new plastic bag pictured on page 47 is designed to clamp under a milk can lid, and thus meet this special need.

With fluorine, there is an entirely different problem. This is an extremely active gas that needs to be handled with care. Samples must be packed in special—and costly—containers; and their distribution must be controlled. So, Pennsalt charges for fluorine samples. Half-pound containers are \$25; six-pound, \$60.

Continued on page 50

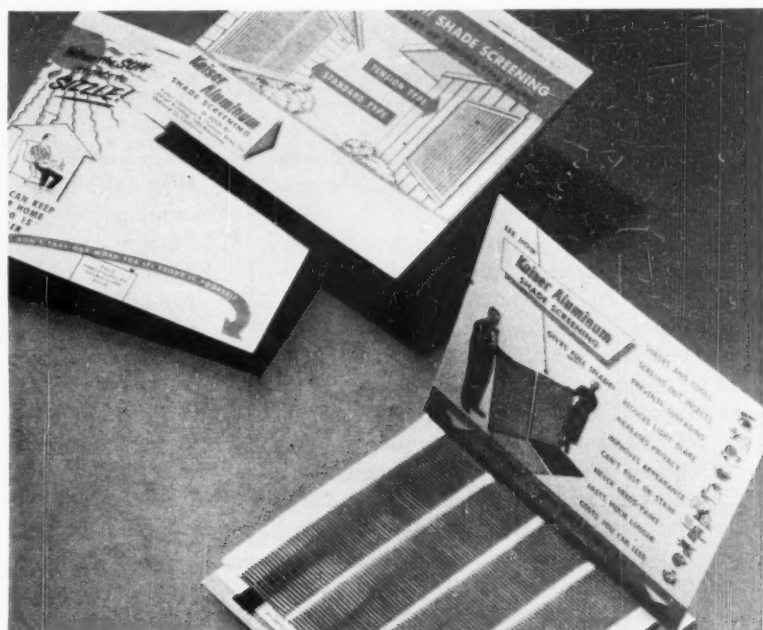
they are solved

3. Sample a product too big to give away

What do you do when your product is much too big and too costly to ship blithely around the country; yet unusual enough so that words and pictures alone can't tell the whole story? That was Kaiser Aluminum & Chemical's problem in introducing its new shade screening. It solved the problem with the mailing piece pictured here, which not only includes a section of the screening, but also shows the prospective consumer how he can demonstrate its advantages for himself. Recently, the company surveyed those who had received the mailing pieces during the first year it was in use. Of those replying (and 25 per cent did), nearly a quarter had already bought shades, and another 40 per cent said they were definitely interested. As Kaiser Aluminum points out with pardonable pride, the mailing piece evidently is doing its job well. This type of survey, incidentally, is something almost any company can—and probably should—do to find out whether or not its sampling program is effective. At the very least, as indicated on page 50, sample requests should be checked against subsequent order lists to make sure samples are not just being poured down a drain.

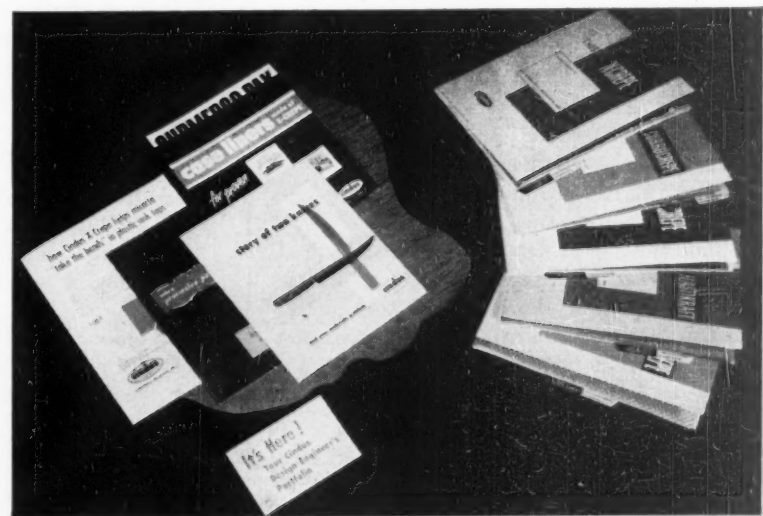
4. Dramatize a new form of a familiar material

Kraft paper is such an old and familiar material that Cincinnati Industries felt there was real danger that its new, and radically different creped material, which is made from Kraft, but performs very differently, might escape notice. To keep that from happening, Cindus gave a great deal of thought to the entire sampling program. First, the new materials, X-crepe, Elastikraft, and Corrucrepe, were divided into major groups on the basis of properties. For each, a distinctive folder was prepared, including samples, information on properties and uses, and an order blank. A slot was also provided for insertion of salesmen's calling cards. Then, for mailing and for answering ad-stimulated inquiries, a "Cindus Design Engineer's Portfolio" was created to hold both folders and literature. Result: the new materials' properties, and their uses—in automobile manufacture, upholstery, plastics laminating, moisture-protective and cushion packaging, and the like—have been clearly emphasized. And another new material has been well and safely launched by careful planning of samples and literature, and proper use of sampling techniques.



Attractive mailing piece combines art work and sample section to show exactly what new Kaiser aluminum screening is, what its advantages are.

To help the samples do their job, Cincinnati Industries prepares special ads, technical literature (left) as well as easy-to-use sample folders.



"Fosbond" phosphate coatings, on the other hand, are safe, low-cost products of a type which is made by a number of companies and is already widely used. Here, the problem lies in getting customers to try a new brand. Two sampling methods have been employed:

During initial field tests, it was felt that a small sample would not be enough. It seemed highly desirable to give selected plants a chance to use Fosbond in full production for at least two weeks. Yet, even for a low-cost product, a sample of this size would be expensive. Pennsalt, therefore, offered these plants a chance to try the new coating on an approval basis. The system worked very well. They all gave it a fair trial—and they all approved.

Now that Fosbond is established, sampling is primarily a matter of preparing coated metal strips for testing by prospective users.

Adjustments like this in sampling procedure as a product grows up, or as a market changes, are essential if the sampling program is to remain effective. Otherwise, as Lawren E. Lee, sales manager of Sugar Beet Products Company, Saginaw, Mich., points out, sampling can become a costly habit.

His company learned that lesson the hard way. Its major product is a "safety soap" for industrial use. When first introduced, in the early 1930's, it was a novelty that almost sold itself. There was little to do but mail out samples and wait for the orders to roll in. But a happy situation like that doesn't last forever. The novelty wore off, and hard selling was in order. Still, the old sampling program kept rolling along.

About two years ago, the company decided to take stock of its whole sales procedure, including sampling. The results were eye-opening: In one territory, over a seven-month period, about 500 samples were mailed out. The cost (without packing and mailing charges) was over \$1,000. Yet, just nine new orders came in, with a total value of \$400; and one of these was later returned for credit, bringing the total receipts down to \$350.

But that was only part of the trouble. A study of salesmen's methods showed that, far too often, the leaving of a sample was becoming an end in itself, rather than a means to an order. Furthermore, experienced purchasing agents, well aware of this situation, were using acceptance of the sample as a way to end sales interviews.

Result: careful rethinking of the entire sales and sampling program.

"Judicious use of samples," says Lee, "will always be a part of our selling program." But, he continues, "We are now concentrating our efforts on test demonstrations—in prospective users' plants—of economy, ease of application, and safety features." Samples are an aid to, rather than a major goal of, the over-all sales procedure.

That's good advice, and well worth heeding. Samples *can* give your product a fair trial—but are they doing it now?

DUN'S REVIEW and Modern Industry *Executive check points*

When and how to use samples

Is your product adaptable to sampling? Should samples be sold or given away? What packaging problems must be met? Check this list for points which apply to your company's operations.

Consider using samples to:

- ☐ Introduce a new product.
- ☐ Demonstrate the abilities of a new machine.
- ☐ Find new uses for established products.

Before embarking on a sample distribution program, make sure you know:

- ☐ What, exactly, you want the sample to do—what type of uses you want to find, or which abilities you want to demonstrate—and to which industries.
- ☐ How much money you can afford to spend on sampling.
- ☐ How much material is needed for a fair test.
- ☐ What type of distribution (by mail, salesman's visit, at group meetings, and so on) will give greatest return for lowest cost.
- ☐ What type of package will be most suitable (see below).
- ☐ What explanatory and technical literature will be required, not only for the original distribution, but also for follow-up.

Select a package that:

- ☐ Provides full and complete protection for the product.
- ☐ Is easy and safe to handle.
- ☐ Is large enough so it won't be lost. (Small samples can be inserted in special envelopes, or attached to technical literature or order cards.)
- ☐ Carries company and product identification.
- ☐ Is easy to open—and won't spill or sift.
- ☐ Can be standardized so that a minimum number of types and sizes is needed.
- ☐ Is the best compromise between cost, appearance, and protection.

Consider charging for samples if:

- ☐ The product itself is expensive.
- ☐ The product is not expensive, but the quantity required for a fair test is large.
- ☐ Packaging of samples presents unusual—and costly—problems.
- ☐ The product has "extra-plant uses." (That is, if it is a generally desirable item which may too often be requested for personal rather than plant use.)
- ☐ There are additional reasons for restricting distribution and/or obtaining some return on costs (for instance, the material used is under

allocation; the technical literature required is costly, and so on).

Try mail (or other public) distribution only if:

- ☐ The package will be safe to handle, easy as well as safe to open, and will give full protection to the product.
- ☐ Handling and use of the product can be explained in writing—and technical literature is ready to accompany the sample.
- ☐ It is possible to make sure each person gets the *right* sample. (This is a problem, of course, only when more than one type of material is produced—but it can be a severe one.)

Start sample distribution when—and only when:

- ☐ The distribution method has been thoroughly tested by mailing samples to company personnel so you *know* they'll stand the gaff.
- ☐ Salesmen have been rehearsed in test demonstrations.
- ☐ You and your distributors are ready to supply the demand you expect and hope to create.
- ☐ Clerical personnel are trained and ready to handle sample and data requests.
- ☐ Technical service is ready to answer questions and make necessary tests.
- ☐ Salesmen have been alerted to the fact that samples are going out—even if they will not be expected to handle the particular material in question immediately. They'll almost certainly get calls anyway, and they should be ready for them.

And follow through to the order by:

- ☐ Including order blanks with every sample—even those distributed in person. (You'd be surprised at how often this is overlooked.)
- ☐ Inserting report-back, postage-paid cards to make it easy for the prospective customer to obtain additional information—and to register any complaints so objections can be overcome promptly.
- ☐ Setting up a regular routine for referring names of those who have requested samples to salesmen so that they can follow up—and encouraging them to do so.
- ☐ Following up by mail (with several letters if necessary—or with a regular mail campaign) when a personal visit is impossible.

Where Do They Buy and Why?



"GEORGE WASHINGTON BIRTHDAY" SPECIALS LURED OVER 10,000 PEOPLE TO FOURTEENTH STREET IN NEW YORK CITY. THE FINAL RESULT WAS JUST SHORT OF A SMALL RIOT, BUT TERMED BY THE STORE OWNERS AS A SUCCESS. IT PROVED TO THEM THAT PEOPLE ARE ONLY TOO WILLING TO BUY IF THE PRICE IS RIGHT.—ASSOCIATED PRESS PHOTOGRAPHS.

NEWEL H. COMISH

*Professor Emeritus of Business Administration
University of Oregon*

*I*N 1953, the author and 22 of his research students set out to determine in what markets retail customers buy, how much in each market, and why. The markets considered are the city central, city secondary, neighborhood, and out-of-town. Eleven Oregon cities with these markets were selected for survey purposes. A questionnaire was formulated, asking what proportion of all goods and specific items were purchased by retail customers in each market—and why. Copies of the questionnaires were made and distributed to the students who made personal interviews with 24,041 customers in the eleven cities. Then a statistical analysis of the results was made. Part of the results are used as the basis of this article.

Table I shows the percentage of all the purchases made and the percentage of furniture and women's wear purchases consummated in the four different markets in the various cities, designated from one to eleven. A glance at this table indicates that the purchases made in the central district stores vary considerably in the eleven different cities. The percentage of all goods bought in that type of market ranges from 70 per cent in city one down to 29.8 per cent in city ten. The median for the eleven cities is 44 per cent. In the case of furniture purchases, in the central market, they vary from 92.0 per cent in city one down to 36.6 per cent in city three.

What are the habits of today's buying public? In which districts are they more liable to do their shopping? What reasons do they have for making a certain selection? The recent move in large numbers to suburban communities has raised such questions and many more in the minds of retailers. An effort to obtain some answers is made in this article.

The median percentage is 63.3 per cent. In the instance of women's wear, the variation in amount ranges from 33.5 per cent in city three up to 86 per cent in city one with the median of women's wear purchases being 72.2 per cent for the eleven cities.

Decided variations in purchases in the city secondary markets are also shown for the different cities. For all goods taken together, the purchases drop to 14.7 per cent in city two and rise to 36.7 per cent in city seven. But the median percentage of purchases made in these markets in the eleven cities is 24.9 per cent. In the case of furniture, purchases consummated in this sort of market range from 1.3 per cent in city one up to 29.7 per cent in city six, the median being 15.2 per cent. In the instance of women's wear purchases in the secondary markets, the volume ranges from 31.4 per cent in city three down to 2 per cent in city one. The median quantity of goods bought in the secondary markets in the

eleven cities is 10.5 per cent.

While there are variations in volume of purchases made in neighborhood markets in the eleven cities, they are not so great as the variations in the central and secondary markets in these cities. Table I reflects a range of variations from 6 per cent of purchases in the neighborhood markets in city three to 13.2 per cent in city nine for the all-products group. For furniture, this category shows the range of purchases in these markets goes from .7 per cent in city one to 3.6 per cent in city three; and for women's wear the range starts at .6 per cent in city eleven and rises to 2.7 per cent in city four. The respective medians for the three classifications are 10, 2.1, and 1.8 per cent.

In the case of the quantities of purchases made by retail customers in out-of-town markets, the variations are much greater than in the neighborhood stores in the eleven cities surveyed. Retail customers living in city ten buy as much as

35.2 per cent of all their goods in out-of-town stores. But customers living in city one purchase merely 4 per cent of their merchandise in out-of-town markets. The median purchases consummated out-of-town for the all-products group is 17 per cent made by the customers living in city five. In the instance of furniture, as much as 37.7 per cent is bought in out-of-town stores by customers living in city three and as little as 3 per cent by patrons living in city eleven. But the median of furniture purchases is 12.7 per cent in out-of-town stores. The range of out-of-town purchases in the case of women's wear goods made by customers living in city eight begins at 1.1 per cent and rises to 33.9 per cent in the instance of customers living in city three. But the median purchases of women's wear made in out-of-town stores is 14.5 per cent and these were consummated by retail customers living in city four.

Now it will be interesting to consider the primary reasons which induce retail customers to buy in the four different markets. Table II discloses the chief causes leading customers to purchase in these markets. In order of frequency of occurrence, "more convenient" ranks first in the case of all goods taken together. Yet it is fourth in the instance of furniture items and fifth in the case of women's wear merchandise. In percentages, it ranges down the scale at 22.8, 10.8, and 8.2 per cent respectively. Thus, a good many customers find it more convenient to buy in one of these markets than any other.

Retail customers give "better assorted merchandise" as the second most significant reason for buying all types of goods. In frequency of occurrence it stands up the percentage scale at 17.4 per cent. But in the instance of furniture and women's wear items, it is first, being rated at 24.7 and 26.1 per cent respectively. "Better quality merchandise" is third in significance in the case of the all-products group and second in the instance of furniture and women's wear items. In point of frequency of occurrence for the reasons given by customers for buying in

CITIES	Central Dist. Stores			Secondary Dist. Stores			Neighborhood Stores			Out-of-town Stores		
	All Goods %	Furniture %	Women's Wear %	All Goods %	Furniture %	Women's Wear %	All Goods %	Furniture %	Women's Wear %	All Goods %	Furniture %	Women's Wear %
1	70.0	92.0	86.0	17.0	1.3	2.0	9.0	.7	2.2	4.0	6.0	10.0
2	63.3	61.1	65.9	14.7	5.5	3.8	6.9	2.3	1.0	15.1	31.1	29.3
3	62.9	36.6	33.5	18.9	22.1	31.4	6.0	3.6	1.2	12.2	37.7	33.9
4	54.0	72.2	72.2	28.1	11.9	10.6	9.4	3.2	2.7	8.5	12.7	14.5
5	44.0	58.7	56.8	27.9	20.2	10.2	11.1	2.5	1.8	17.0	18.6	31.2
6	49.8	53.8	40.3	21.0	29.7	25.5	11.9	2.4	1.8	17.3	14.1	32.4
7	42.4	61.1	56.5	36.7	20.1	8.3	10.5	2.1	1.3	10.4	16.7	23.9
8	37.9	63.3	81.5	32.9	28.6	15.2	10.0	1.2	2.2	19.2	6.9	1.1
9	36.8	74.0	77.9	23.9	13.0	13.1	13.2	1.3	1.9	26.1	11.7	7.1
10	29.8	82.0	76.8	24.9	5.1	10.5	10.1	1.4	.7	35.2	11.5	12.0
11	40.5	80.9	85.4	25.1	15.2	10.1	9.2	.9	.6	25.2	3.0	4.0

REASONS FOR BUYING	Frequency of Occurrence of Reasons in Percentages		
	All Types of Goods	Furniture	Women's Wear
MORE CONVENIENT	22.8	10.8	8.2
BETTER ASSORTED GOODS	17.4	24.7	26.1
BETTER QUALITY GOODS	14.8	17.4	23.1
BETTER SALESPERSONS	10.7	12.9	15.6
LOWER PRICES	10.2	9.7	12.9
MORE DEPENDABLE STORE	8.6	9.9	4.6
BETTER PARKING SPACE	6.3	4.3	3.0
FRIENDSHIPS IN STORES	5.6	4.5	2.8
BETTER SERVICES	2.4	5.8	2.1
OTHER REASONS	1.2	.9	1.6

these markets, this cause stands on the ladder at 14.8, 17.4, and 23.1 per cent.

Another primary reason for purchases being made in the central, district, neighborhood, and out-of-town markets is "better salespeople." It is ranked fourth in the case of the all-products

Modern, attractive retail stores and shopping centers are springing up in suburban communities and other outlying districts. If the population change continues there will be a marked difference in the marketing pattern. Retailers should be ready for it.

category and third in the furniture and women's wear classifications. Or, on a percentage basis, it stands up the scale at 10.7, 12.9, and 15.6 per cent respectively. "Lower prices" is the fifth reason given for buying all types of products in these markets. But in the instance of furniture, it is sixth in significance. In the case of women's wear articles, it is fourth among the reasons prompting customers to buy.

For the all-products group, "more dependable

Continued on page 81



DEVANEY PHOTOGRAPH



How to Start a FOREMAN'S UNION

You can always invite an organizer in. That's the easy way. But a surprising number of people seem to do it the hard way. Like this . . .

ALFRED G. LARKE
Employer Relations Editor

IF EVERY foreman who is told, "You're a management man," really were one, the foreman problem would be solved, and everyone could turn around and find something new to worry about. For people who like to worry, that would be as good as a holiday.

But before the training directors and discussion leaders fold their flipcharts and silently steal away, it should be recorded that the foreman problem is not solved.

In fact, the complaint has been made that, in attempting to solve the problem of supervisory and middle management, industry has created new problems without completely solving its old ones. Claude V. Swank, vice-president in charge of manufacturing, Johnson & Johnson, New Brunswick, N. J., told an American Management Association conference:

"Top management . . . has been carried away, in many respects, by a profusion of programs. . . . I recommend that we get operating management back on the job."

Douglas McGregor, president of Antioch College, told a similar group that industry has been

less effective in its human relations than need be because top management emphasizes the fire-fighting against the fire-prevention aspect, and because it attempts to delegate human relations to the staff, instead of handling it as a line function.

Whatever the cause, management has been actively concerned with the status of foremen for more than fifteen years—since foremen first began to join unions.

Companies no longer need recognize foreman unions for collective bargaining—a law took care of that. But they still must recognize dissatisfactions that drive foremen to unionization.

One reason may be that it is applying its own sage advice badly—as in the 23 typical situations that follow. Though tongue-in-cheek descriptions, they represent actual practises.

The man who can read through all of them, without checking any as a practise in his plant, is working for an exceptional company. The man who must check too many should give a long, hard look at company policies and how they are put into practise.

1. Select your foremen scientifically—run tests to find the least popular man in the crew and promote him to supervisor ☐

Assures you won't get a union man or some other popular leader, thus guaranteeing discipline will be tough in the department, because the new foreman won't have any tool to work with, except discipline.

2. Don't coddle the supervisor—point out to him that the emotional satisfaction he'll get out of being a boss will more than make up for lost opportunities for incentive pay, overtime, and so on ☐

This ought to hold him, at least until his wife gets to comparing his pay with production-line pay some time when overtime is running high, or a union member taunts him some week when incentive pay is good.

3. Don't let the foremen become too familiar with top management, except, of course, at the annual Foremen's Dinner when backslapping

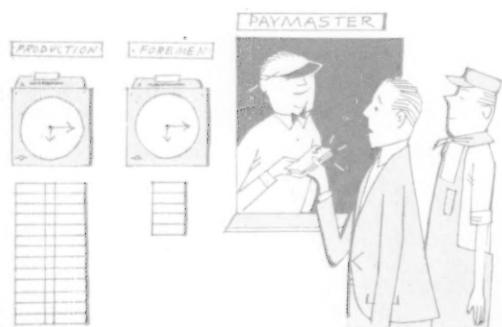
is not only permissible but desirable. It's OK at picnics, too..... ☐

Good idea is to insulate front-line foremen from top management by as many layers of intermediate supervision as possible—say seven to nine, as a minimum. Maintenance of a deep field of middle-management increases the possibility that the buck will get lost as the many players pass it; keeps foremen on a "Sir" and "Mister" basis; saves you the annoyance of hearing a lot of front-line problems first-hand from the front line; the men in between will see they're toned down, smoothed out, sweetened up, more like what you want to hear than what the foreman wants to tell you.



4. Keep the foreman well informed on the progress of labor negotiations—let him read about them in the union paper..... ☐

Much less costly than putting out your own Supervisors' Letter or holding meetings to keep the foreman in touch with what's afoot. Gives the supervisor a lively insight into all management's monstrous motives, and gets him the gossip almost as soon as his employees have it.



5. Confer distinction on the supervisory job—give the foremen their own special time clock to punch..... ☐

Shows him how far up the ladder he has come in being promoted from the production force, and how much farther he has to go before he's on the executive payroll and paid by check. If he's paid in cash at the same window as the men under him, it makes great sport for the latter to peek over his shoulder and see if he's earning as much on salary as they are with overtime.

6. Check up carefully on any supervisor seen acting too friendly with his men..... ☐

He may, of course, simply be winning the man over, or practising "communications" with him. But can he possibly be a management man and remain on good personal terms with union men in his crew? If you, representing the very quintessence of management, can get along without personal friendships on the shop floor, why can't the foreman, too?

7. Try the sink-or-swim technique of supervisory instruction..... ☐

Saves training costs, separates the men from the boys, and performs lots of other similar clichés. If it doesn't also produce a high percentage of successful foremen, that's too bad. At least you've followed a rigorous principle rigorously.

8. Build friendship with the supervisor by asking him to turn out little personal jobs for you in the shop, or to send a couple of men out to your house to make repairs..... ☐

What he loses in production he'll gain in contempt. Does the double job of putting him on the defensive about department costs and on the offensive about higher management—especially if he's a stockholder, too.



9. Tell him how important people are, tell him you've told him, then tell him again, but never let your enthusiasm carry you away to where you believe it yourself..... ☐

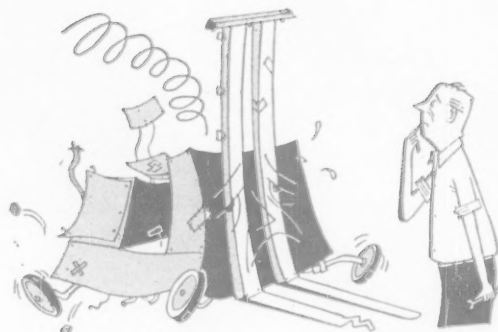
Preaching platitudes at them until the stuff runs out their ears eventually makes them associate management with sanctimonious twaddle, or is this what we are after? Anyway, it's safer than treating foremen like people—might make them too big for their britches.

10. Impress on the foreman that production is the one and only basis on which his performance will be judged. Leave good human relations to the training department and other do-gooders; harp on production again and forever..... ☐

As a number of independent surveys have shown, when the supervisor's immediate superior in command presses hard for production, so does the supervisor—and the supervisor who gets the least production is the one who presses too hard for it. Isn't this where we came in?

11. Warn him not to try to settle employee grievances himself, but always to put off the griever and the union steward until he's had a chance to consult the Personnel Department..... ☐

Whereas some other recommended devices cut the foreman down in his own eyes, this cuts him down in the union's eyes. They *know* he's just a straw boss and can make no decisions.



12. Give the foreman proper tools and machinery to do his job, and a maintenance program that keeps them up to snuff—until a breakdown can be charged to his overhead..... ☐

It makes it difficult to blame the foreman if the equipment breaks down before he gets it. But a failure while it's his responsibility will test his ingenuity, keep idle hands from mischief, broaden his experience and his vocabulary, and cool off any hothead who's out to set new records for productivity.

13. Don't tell the supervisor what's going on; let him guess..... ☐

When a corner of the plant is shut down, old machinery is moved, a new loading dock is constructed, seven strangers begin prowling through the plant, why give the foreman answers to pass on to employees? Then they'd know, too.



14. Teach foremen the value of keeping proper records, even if it hurts..... ☐

First, it will stand him in good stead if he's ever promoted to the front office, where skill in shuffling papers will never be amiss. Second, it keeps him from poking his nose too much into production. Finally, it makes him realize the company has put him on a spot. Take away his time clerk and you have an extra hand to mimeograph new forms for him to fill out.



↑ **15. When a man becomes a foreman, establish some special little symbols of his new, important status.**.....□

This might consist of such things as no longer requiring him to come in at the employees' gate, but sending him around to the back door, instead. No need to be too hasty about letting him in the executive front entrance, of course. He's getting foreman's pay now; shouldn't that be enough? *We* come in the executive entrance only because it's closer to the executive parking lot. We park on the executive lot only because it's easier to find space there. Logical, isn't it? Naturally, as executives, we're above taking pleasure in such petty distinctions accruing to our positions in the hierarchy. Aren't we?



↑ **16. Give the supervisor full authority to enforce rules and regulations in his area—but never let him forget who's really boss.**.....□

Drop around once in a while and scratch a match on one of his No-Smoking signs, or encourage some visiting doll to fling a fur scarf or a full sleeve at some moving machinery. This gives the foreman's crew quite a yak and builds the foreman up as a very strong disciplinarian except when there's a bigger toad in the pond. Makes him feel great, encourages him to wonder why he ever let himself be put in the middle like this.

↑ **17. If you feel like playing favorites among your foremen, do it.**.....□

They have no seniority now they're out of the bargaining unit—nor any other protection against discrimination, except your good faith. You can promote them, demote them, shove them around at will; teach them what they're missing now they have no bargaining agent;

argue with them, bawl them out in public, pass the buck to them—everything but make them like it.

↑ **18. Let the training department worry about making management men out of foremen.**...□

True, many foremen who seem to learn their human relations lessons letter-perfect fail to apply them in the shop. True, the personnel man can't force a foreman to change his ways. But must line management become leaders, too?



↑ **19. Maintain the foreman's morale and stature by giving him fullest authority to hire anybody the employment office sends him and fire anybody the plant manager doesn't like—but only with Personnel's OK, of course.**...□

This isn't the subtlest way of letting him know you don't think he has the brains to hire and fire, but it's a very effective way of assuring that the foreman doesn't acquire leadership over his crew. If he complains, you can always point out how lucky he is the employment office didn't send him his wife's brother, or your nephew. If his crew laughs at him, tell him this is why he's called "middle" management.



↑ **20. Show your solicitude for his feelings by swamping him with questionnaires, opinion polls, surveys, interviews in depth, non-directive counseling, and the like.**.....□

This flatters him at first, because it's nice to know someone is concerned enough about what he thinks to ask him. Only gradually does the suspicion grow on him that, if so many people probe him, there must be something wrong with him, and what is it? Give a man enough physical examinations and he'll oblige by developing all the symptoms you are looking for. Probe his

mind enough and he'll develop mental hypochondria. It's at this point the foreman decides nobody loves him, and even a psychiatrist will think twice before trying to straighten him out.



↑ **21. Don't make the foreman stand around like a floorwalker in the wrong store. Give him a neat office, warm, lighted, with comfortable seat and plenty of room for paperwork.**....□

Nothing sets the supervisor apart from the production worker like an office of his own; and nothing sets him apart from an executive like the kind of office the foreman gets. If the company can afford it, put in an extra nail keg for guests and leave some cheese out for the mice so they won't chew up important papers. If the foreman's disposed to grumble, remind him George Washington didn't even have an electric light in his office.



↑ **22. Enlist the whole man in the enterprise—let him see the budget, that somebody else made up, that he has to work against (and then watch him work against it!)**.....□

This is known as building non-participation into the task. Big boon to the foreman because, if he fails to make budget, it always gives him grounds for retorting, "Those crazy figures! Whoever made them up was nuts. How could a man keep to them?" It would obviously be unkind to let him share in setting the budget because then, if he failed, he would have to call himself names. And when a man begins talking to himself, it is well known where that leads to.

↑ **23. If none of these suggestions, nor all of them together, drive your foremen into organizing, give up and phone the union.**....□

As an amateur organizer you're a washout. What you need is a professional.

Selling to Canadian Industry?

HERE'S
THE
MARKET

Two provinces are the core of the biggest and growing export

market for industrial products. This study shows where and how much.

JAMES K. BLAKE

Marketing Editor

SEVEN MILES northeast of downtown Toronto, Ontario, a building project is moving toward completion. When it is finished, total investment will be in the neighborhood of \$200 million and it will be one of the few completely planned communities on the continent to include housing, shopping centers, and diversified industry. International Business Machines has more than \$2.5 million invested in a plant on 75 acres; the Perfect Circle Company (piston rings) has a \$750,000 plant; Philco Corporation will begin producing this year in a new \$1.5 million plant with 500 employees; Barber Greene Canada Ltd. (materials-handling conveyors) has an initial investment of \$500,000 and will employ over 100 persons by the end of this year.

None of these plants rates a "gee whiz" news story. None, for example, is quite so fat as Canadian Chemical's \$55 million cellulose acetate flake plant in Edmonton, Alberta, or the uranium and iron ore developments. But, together with 25,000 other plants, they help explain why the provinces of Ontario and Quebec produce more than 79 per cent of total gross sales in Canadian manufacturing.

How big is the total Canadian market for industrial equipment and supplies? A rough measurement is that the cost of materials going into finished products during 1951 was \$9.1 billion. This does not include, however, purchases of new plant and equipment by manufacturing, utilities, and extractive industries which add about \$2.5 billion. Estimates of 1953 spending on machinery and equipment alone were close to \$2 billion. Although complete data on actual industrial purchasing in 1953 is not available yet, it will be in the neighborhood of \$15 billion.

To highlight the profile of Ontario and Quebec as the key industrial marketing center of

Canada, here is a fast barrage of figures. Manufacturing output in Quebec alone constitutes more than 50 per cent of the Canadian total in the following industries:

- Pulp and paper.
- Tobacco, cigars, and cigarettes.
- Cotton yarn and cloth.
- Leather boots and shoes.
- Men's and women's factory clothing.
- Railway rolling stock.
- Silk.
- Medical and pharmaceutical preparations.

The province of Ontario produces more than 90 per cent of total Canadian output of motor vehicles and parts, heavy electrical machinery, and agricultural implements. In addition, its share of the total runs from 50 to 90 per cent on these:

- Rubber goods.
- Primary iron and steel.
- Iron castings.
- Paper products.
- Sheet metal products.
- Brass and copper products.
- Industrial machinery.
- Paper boxes and bags.
- Furniture.

The detailed tabulation to the right adds more depth to the picture of industrial purchasing power in the two provinces. It shows, in effect, the combined output contributions of Ontario and Quebec to the total of the 26 largest Canadian industries. Percentages range from 99.9 per cent down to 24.9 per cent, but the average concentration is close to 74 per cent.

These figures are especially significant for manufacturers planning to break into or expand their Canadian sales. In a nutshell, they show that of 3.8 million square miles of real estate,

considerably less than one-third contains the core of the industrial market.

Without question, the remaining seven provinces are developing fast but, with some important exceptions, their key industries in terms of selling to them are based on extractive and refining industries, food processing, and lumber. In Manitoba, for example, it takes 1,100 product classifications to list all of the output in the *Manitoba Trade Directory*. But gross value of sales (1950 Census) was only \$486 million of which more than 20 per cent concentrated in animal slaughtering and meat packing.

The fastest growing province is probably British Columbia, which between 1945 and 1950 increased its manufacturing sales by 80 per cent and moved up to third in rank among the provinces. But again, of an interesting sales total of \$1.1 billion in 1950, nearly 40 per cent were concentrated in the wood processing and related industries.

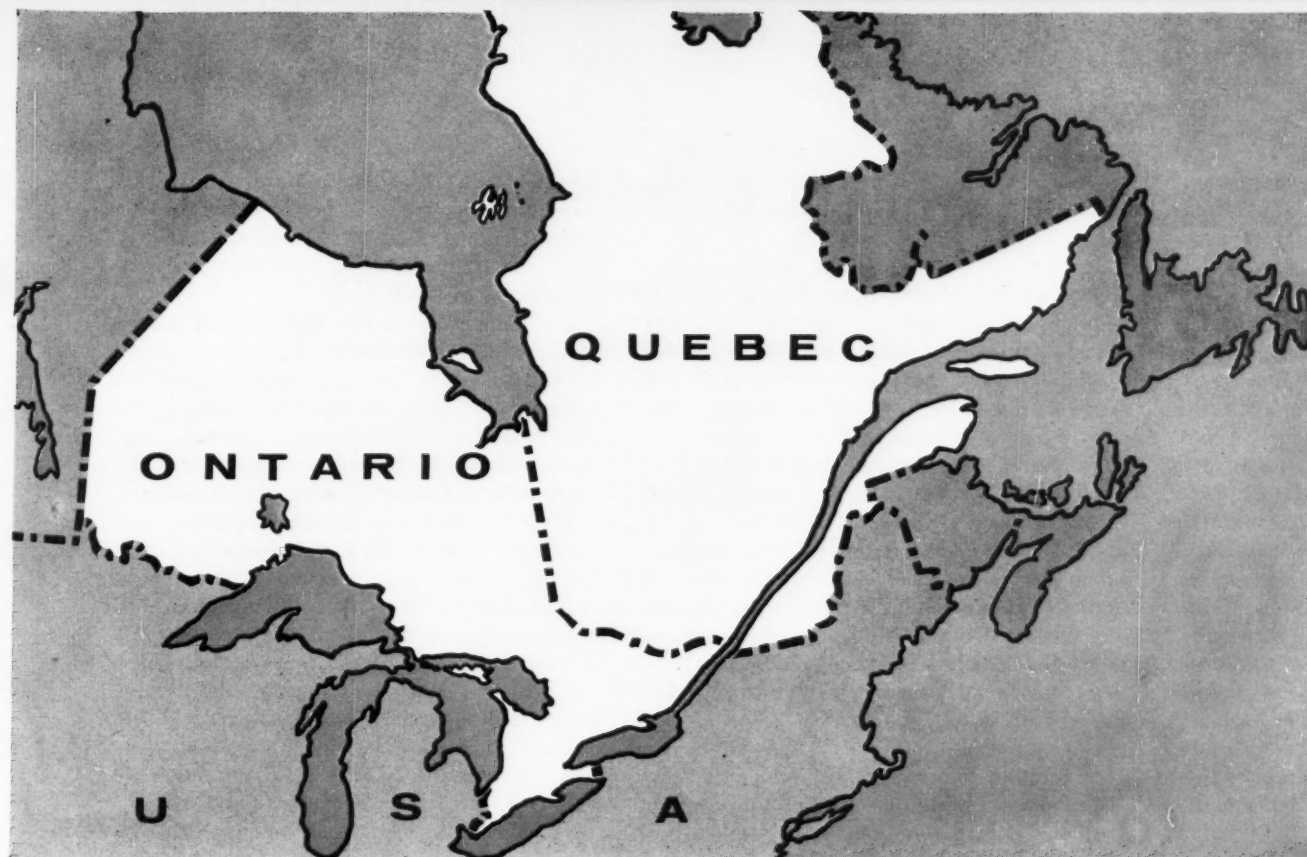
A broad and possibly unfair generalization would be to typify Ontario and Quebec as manufacturing oases surrounded by timber, grain, and cattle. Though all the provinces are making strenuous efforts to diversify manufacturing, the pickings for industrial suppliers are still slim.

How slim? Here's the story.

In British Columbia there are seven industries with gross sales over \$30 million annually. They are: sawmills, pulp and paper, fish processing, slaughtering and meat packing, petroleum products, sash, door, and planing mills, and veneers and plywood.

In Alberta, there are three industries with an annual gross over \$30 million: slaughtering and meat packing, petroleum products, and flour mills.

Saskatchewan contributes three also: petro-



*Industrial Purchasing Power is Heavily Concentrated
in Two Key Canadian Provinces*

MAJOR INDUSTRIES BY RANK	CANADIAN TOTAL*		QUEBEC		ONTARIO		TWO PROVINCES TO TOTAL	
	Gross Sales	No. of Plants	Gross Sales	No. of Plants	Gross Sales	No. of Plants	% of Sales	% of Plants
Pulp and paper	954.1	123	421.7	54	299.4	44	76.0	79.7
Slaughtering and meat packing . .	757.0	157	174.7	40	292.7	62	60.0	62.4
Motor vehicles	675.9	19	(1)	(1)	664.7	12	98.3	63.6
Non-ferrous metals, smelting, and refining	669.9	17	263.6	7	264.3	8	80.2	88.2
Petroleum products	511.5	46	188.7	6	139.3	14	64.1	43.4
Sawmills	496.9	7,551	73.6	1,965	68.5	1,385	33.0	44.3
Primary iron and steel	340.5	55	32.2	12	259.7	23	85.5	63.6
Butter and cheese	330.7	1,806	92.7	782	119.1	660	61.0	79.7
Cotton yarn and cloth	257.4	51	171.2	18	74.9	29	95.6	92.1
Flour mills	247.1	118	(1)	(1)	119.1	66	48.1	55.8
Rubber goods	239.2	61	41.5	23	197.5	32	99.9	90.2
Clothing, men's factory	226.7	566	127.2	341	69.0	148	86.9	86.2
Motor vehicle parts	226.5	151	(1)	(1)	222.1	96	97.9	50.3
Bread, other bakery products . . .	214.6	2,608	59.0	976	93.1	901	70.8	71.9
Clothing, women's factory	194.6	914	129.3	550	(1)	(1)	66.4	60.1
Railway rolling stock	194.3	38	93.0	10	(1)	(1)	47.8	26.3
Machinery, heavy electrical	187.8	49	(1)	(1)	180.3	33	96.0	67.3
Printing and publishing	191.4	787	44.2	81	88.3	295	69.2	47.7
Food, miscellaneous	179.6	299	64.3	72	60.9	122	69.6	64.8
Furniture	172.3	1,207	53.4	377	89.7	472	83.0	70.3
Sheet metal products	171.9	283	43.0	67	101.8	146	84.2	75.2
Miscellaneous electrical apparatus and supplies	170.7	145	83.6	32	84.6	96	98.5	88.2
Fruit and vegetable preparations . .	161.1	444	(1)	(1)	102.8	200	63.8	45.0
Sash, door, and planing mills . . .	160.7	1,590	40.1	728	(1)	(1)	24.9	45.7
Industrial machinery	160.4	303	47.5	59	91.8	169	86.8	75.4
Prepared feeds, stock, and poultry .	155.3	568	47.1	163	68.5	246	74.4	72.0

*Source: basic data—Dominion Bureau of Statistics (millions of dollars, Canadian). (1) Industries not among the leading 40 in each province are not included.

leum products, flour mills, and slaughtering and meat packing.

Manitoba features slaughtering and meat packing, and railway rolling stock.

Newfoundland has only one: pulp and paper.

Nova Scotia has two: fish processing, and primary iron and steel production.

New Brunswick has one: pulp and paper.

All of which brings the manufacturer about to break into the Canadian industrial market back to the focal-point provinces—Ontario and Quebec—as the key areas for concentration. Most Canadian companies themselves recognize this explicitly in their marketing operations. Their standard practise is to set up five different marketing areas. One covers the four Maritime Provinces on the Eastern Seaboard (Newfoundland, Prince Edward Island, New Brunswick, and Nova Scotia). Another covers fast-growing British Columbia on the west coast. Another wraps up the Prairie Provinces (Manitoba, Saskatchewan, and Alberta). Separate distribution organizations handle Quebec and Ontario, one for each.

Although distances in Canada are vast from the distribution viewpoint—Quebec, for example, is roughly five times the size of Texas—enormous areas are uninhabited industrially. Most provinces extend northward into the sub-arctic region where even population is sparse. Except for the newer industrial developments to the north which hinge upon recent discoveries of ore deposits, population and industry are bracketed by a long 4,000-mile belt about 200 miles wide with the lower edge (from east to west) riding

the St. Lawrence River, the Great Lakes Waterways, and then the transcontinental railways to the west coast.

The table to the right shows how manufacturing is confined to a relatively small number of urban centers. Had that table been enlarged to include all urban centers producing more than \$1 million gross the urban centers (and still relatively few of them) would contribute 94 per cent of total output in the two provinces.

The heavy manufacturing concentration, first, within these two provinces and, second, within the confines of a few major centers can be pointed up another way. In 1950 there were 38 urban centers in Canada with gross production over \$50 million; 28 of these were in Ontario and Quebec. Output in the 28 large centers totalled \$7.1 billion. This amounted to nearly 52 per cent of total Canadian manufacturing output!

US industrial exporters to Canada (which buys roughly 25 per cent of our total exports) will undoubtedly run into various aspects of the hard sell during this year. To a large degree these are cyclical. Canadian industry is linked to that in the US by a strong economic umbilicus and the current slackening here is reflected to the north. But there is a long-term problem which US industry may have more difficulty in solving.

The Canadian Government and industry are naturally eager to control, as much as possible, their own economic destiny. This means an intensive development program. In 1953 Canadian industry invested \$6.2 billion in new plants and equipment. At 22 per cent of comparable US

investment it looks like peanuts (well-salted ones) but it represents 26 per cent of Canadian Gross National Product. The record-breaking US figure, on the other hand, shows up as only 7.5 per cent of GNP.

The immediate effect of this is clearly shown by the export tabulation at the bottom of this page. The major Canadian imports from US manufacturers now are heavy equipment, machinery and parts, semifinished products, and machine tools. As Canadian industry reaches a more advanced stage of maturity the composition of US sales will inevitably change, thus creating a problem for heavy equipment manufacturers along with growing opportunity for manufacturers of other types of supplies.

Sales opportunities of all types of products will be increasingly limited, however, by a growing self-sufficiency. As Canadian industry becomes more diversified, manufacturers will find it more economical to buy home-grown components, if available. The plastics industry, to take a current example, has mushroomed to a point where US suppliers are finding Canadian sales tough going. In another field, this year Canada's first stainless steel mill will be producing sheets, strips, and tubes in Ontario. It's only a matter of time until fabricating plants for stainless steel products are built. And if the trend of economic-political development in other countries is followed in Canada as it has been in the US, there will be intense pressure to retain and increase the tariff barriers on US imports. Scores of US companies are anticipating these developments by establishing Canadian branches.

*U. S.
Industry
Is
Already
the Major
Supplier
to
Canadian
Manufacturing*

*Canadian Industrial Imports
during first Six Months of 1953*

CATEGORY	FROM US	FROM WORLD
	Thousands of Dollars (C.)	Thousands of Dollars (C.)
Cotton fabrics	27,162	33,596
Synthetic fiber fabrics	9,762	—
Wood, wood products, and paper	72,232	78,267
Machinery (non-farm), and parts	178,317	205,882
Automobile parts	126,002	128,519
Engines, internal combustion, and parts	47,547	57,537
Tractors and parts	78,011	81,119
Rolling mill products	50,319	61,205
Farm implements and machinery	47,123	48,039
Pipes, tubes, and fittings	29,603	35,563
Cooking, heating apparatus, and parts	13,771	14,021
Tools	15,371	18,386
Electrical apparatus	84,570	97,750
Principal chemicals (except acids)	24,153	26,343
Synthetic plastics, primary forms	14,877	15,968
Non-metallic minerals and products	189,639	296,777
Drugs and medicines	12,027	13,728
Aircraft and parts	54,717	59,314
Non-ferrous metals and products	127,130	171,724

Source: Dominion Bureau of Statistics, International Trade Division.

Pinpointing the industrial market

- Only 171 towns in Ontario and Quebec house more than 15,000 plants
- Producing 63 per cent of total Canadian gross sales—your key market area.

ONTARIO								
Towns	Sales in Millions of Dollars	Number of Plants						
Acton	11.3	20	Newmarket	9.8	19	Coaticook	7.5	21
Almonte	3.5	11	New Toronto	124.4	37	Drummondville	67.3	46
Amhurstburg	13.2	11	Niagara Falls	77.6	81	Farnham	9.0	21
Arnprior	5.0	19	North Bay	4.7	31	Grandby	47.0	67
Aurora	7.8	49	Oakville	13.8	43	Grand'mere	23.6	26
Barrie	14.6	25	Orilla	12.9	47	Hull	44.2	66
Belleville	25.1	58	Ottawa	80.9	268	Huntingdon	10.4	15
Brampton	9.0	30	Owen Sound	15.3	52	Iberville	2.9	20
Brantford	125.8	150	Paris	11.6	24	Joliette	15.6	59
Brockville	28.1	42	Pembroke	7.1	32	Jonquiere	5.6	16
Burlington	8.0	16	Penetanguishene	2.4	13	Lachine	61.7	54
Caledonia	4.6	11	Perth	7.0	25	Lachute	2.4	11
Campbellford	3.6	19	Peterborough	111.4	98	La Pêrade	2.2	13
Carleton Place	4.7	10	Petrolia	8.4	13	Lasalle	75.9	36
Chatham	68.0	72	Port Arthur	32.7	54	Lennoxville	3.8	13
Chesley	2.1	13	Port Hope	10.6	24	Levis	4.1	37
Cobourg	8.8	30	Prescott	3.4	17	Longueuil	20.8	36
Collingwood	6.5	19	Preston	20.4	39	Lorretteville	2.4	28
Cornwall	63.6	52	Renfrew	6.2	28	Marieville	3.9	20
Dundas	8.3	30	Ridgetown	2.1	12	Matane	2.3	22
Dunville	7.8	20	St. Catharines	105.5	111	Megantic	2.7	18
Eastview	5.0	17	St. Marys	10.0	13	Mont Laurier	2.3	19
Elmira	8.1	21	St. Thomas	17.9	44	Montmagny	10.5	47
Essex	2.3	14	Sarnia	169.8	49	Montreal	1,696.7	4,127
Fort Erie	11.9	18	Sault Ste. Marie	109.5	54	Montreal East	318.2	25
Fort William	45.2	50	Seaforth	2.4	13	Nicolet	3.0	18
Galt	45.2	91	Simcoe	20.8	30	Outremont	23.9	25
Gananoque	6.1	18	Southampton	2.0	8	Plessisville	5.2	20
Georgetown	10.2	18	Stratford	27.4	67	Point aux Trembles	2.6	11
Goderich	9.0	17	Strathroy	3.3	19	Portneuf Station	6.0	12
Gravenhurst	2.2	8	Streetsville	5.0	13	Princeville	6.2	12
Grimsby	3.9	17	Sudbury	8.7	43	Quebec	134.3	434
Guelph	51.9	106	Swansea	7.8	9	Richmond	2.7	13
Hamilton	625.5	549	Thorald	36.0	26	Rimouski	2.7	32
Hanover	6.0	22	Tillsonburg	11.5	26	Riviere du Loup	2.3	22
Hearst	2.5	8	Timmins	4.5	26	Rock Island	4.2	18
Hespener	12.7	20	Toronto	1,686.9	4,011	St. Felicien	3.6	16
Huntsville	5.7	16	Trenton	13.1	25	St. George	2.1	13
Ingersoll	14.8	27	Walkerton	2.5	17	St. Hyacinthe	41.5	86
Kincardine	2.8	13	Wallaceburg	27.6	25	St. Jean	39.1	66
Kingston	53.6	70	Waterloo	31.0	55	St. Jerome	23.4	54
Kitchener	159.4	195	Welland	97.3	58	St. Lambert	5.9	16
Leamington	27.8	17	Weston	27.6	46	St. Laurent	29.6	29
Leaside	101.3	50	Whitby	2.3	13	St. Marie	4.1	20
Lindsay	7.3	35	Windsor	564.9	280	St. Remi	4.2	11
Listowel	3.8	14	Wingham	2.8	16	Ste. Therese	5.6	32
London	158.6	275	Woodstock	39.4	65	Shawinigan Falls	84.0	45
Longbranch	14.5	34				Sherbrooke	70.1	100
Meaford	2.5	18				Sorel	5.0	34
Merritton	23.2	16				Terrebonne	4.1	17
Midland	8.1	21				Thetford Mines	2.1	28
Milton	6.5	13				Thurso	3.2	10
Mimico	5.0	31				Trois Pistoles	3.4	17
Mount Forest	3.7	17				Trois-Rivieres	92.9	80
New Hamburg	2.2	12				Valleyfield	34.5	42
New Liskeard	3.9	14				Verdun	9.7	58
						Victoriaville	15.8	56
						Warwick	3.7	17
						Waterloo	5.3	20
						Westmount	14.2	14

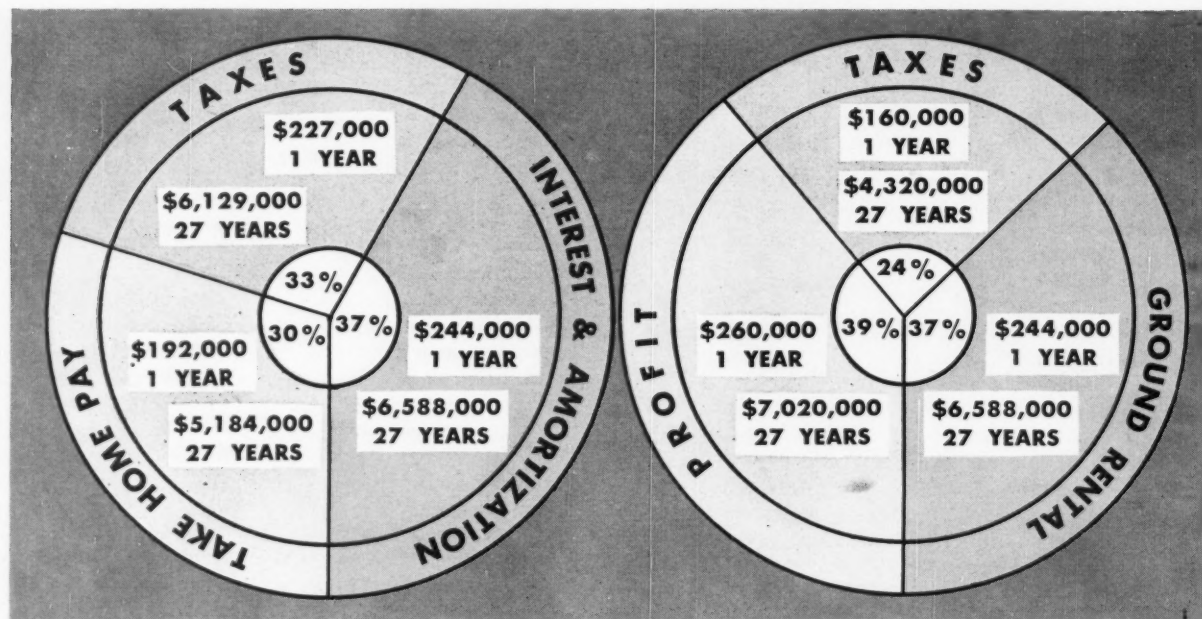
QUEBEC

Towns	Sales in Millions of Dollars	Number of Plants
Acton Vale	4.8	13
Asbestos	5.4	13
Beauharnois	17.6	14
Bedford	4.3	12
Berthierville	4.8	15
Cap de la Madeleine	29.3	31
Chambly-Canton	2.9	9
Chicoutimi	3.1	33

The Recent Trend in Real Estate

TO OWN OR LEASE

In large cities throughout the land, real estate deals have been grabbing financial headlines. Why so much interest in the sale of privately owned property? First, it's always news when an edifice like the Empire State Building or the Yankee Stadium is sold. Second, there is a high interest in the conditions under which such transfers take place and in the reasons for their taking place. A building is sold, then leased by the seller. Are there more advantages than disadvantages in this? To own (right) or to lease (left) are questions waiting for answers. (The figures in the charts at right are those of Mr. Glickman.)



LOUIS J. GLICKMAN

I HAVE BEEN asked on numerous occasions why I prefer and pursue the sale leaseback formula in preference to the conventional method of financing. Taxes—a familiar word, no doubt to all of us. Now let me explain.

I have chosen to sell and lease back many buildings, including some good-sized office buildings. I have purchased in New York and many other cities. There are, I feel, many advantages to doing so, and, by and large, the formula has proven profitable.

Interest in real estate is growing rapidly in this method of financing property. It is a departure from obtaining an institutional first mortgage, which is the customary and conventional method of financing real estate.

This method of sale and leaseback may involve office buildings, apartment houses, factories, shopping centers, and so on. Moreover, it is of little importance to the title owner who purchased and leased back his property, whether the property is in his own or some distant city, for he does not have to give the operation his personal care and attention.

Here is what that formula consists of. Mr. X owns a building. He sells it to Mr. Y. Mr. Y then leases the building back to Mr. X. Mr. X now operates the building and pays rent to Mr.

Y, while Mr. Y, who receives the rent from Mr. X, gets a fixed return on his investment. Mr. X secures new additional working capital and is able to deduct the rent he pays to Mr. Y from his taxable income. That's the skeleton of the formula.

It may be wise at the outset to distinguish between these two principals. When X sold and then leased back his building, he became the "leaseholder" of the property. Y, who purchased, is the actual "title owner" of the property. I will try to use these designations throughout.

Both of these men have taken their positions expecting to make profits. It is my experience that they have good chances of doing so. Let's examine the title owner's position first. He has invested certain sums with the understanding that he will get a fixed annual yield. What are the advantages to him under the formula?

The position of the title owner who purchased the property is a relatively secure one. He can sit at home and collect his net rental, counting on a fixed return on his investment. There is also a possibility that he might be able to arrange with the leaseholder to give him as additional income a percentage over a stipulated amount of gross annual income that the building may bring. Thus, should the building's revenue increase,

both parties might share possible, additional income.

As the title owner of the real estate, he is able to take advantage of the depreciation of the real estate, which can represent a great savings tax-wise. If there is a mortgage on the property, and usually there is, the title owner can pay the interest and amortization on the mortgage from the rental income he receives, which still leaves him a fair and reasonable return on his investment.

Ultimately, the mortgage will be liquidated and he will find himself owning the property without any mortgage, besides having had all along a handsome return on his investment. While the payments made by the title owner in reduction of the mortgage are reportable by him as income, this may well be more than offset by the depreciation he is permitted to take as title owner of the property. Under these circumstances he can well afford, after the mortgage has been liquidated or very substantially reduced, to lower the leaseholder's rental, thus passing on some of these benefits to the leaseholder.

What are the advantages to the leaseholder, the man who has obligated himself to operate the building? He agrees to pay the city taxes, make all the necessary repairs and maintain

Continued on page 93

Anyone can make a GOOD SPEECH

*Simply follow these tips. They don't involve
elocution lessons or oratorical talent.*

MARGARET L. JONES
Executive Methods Editor

HERE'S HELP

*in conquering panic
in choosing the right props
in holding your audience
in handling the unexpected
in understanding silence
in using notes properly
in managing time
in introducing and being
introduced*

WHEN Frank W. Abrams was elected chairman of the board at Standard Oil Company (N. J.), for the first time in his business career he found he couldn't duck a considerable amount of public speaking.

He dreaded this duty. Yet he grew to enjoy it, and he was enjoyed equally by his listeners. He once told an associate, "I felt about speeches the way I did about the school bully. As soon as I found I could lick him, I couldn't wait for another chance to take him on."

It is perfectly possible for the average executive to experience Frank Abrams' victory, (even though, unlike Abrams, he never KO'd the school bully).

First, he must accept two facts:

Making a speech is like going to the dentist. No matter what the dentist advertises, the event is never quite painless. Even professional speakers sweat beforehand over what to say, and feel their collars grow tight as the actual moment of talking approaches.

The first fact, then, is that making a speech is hard work. The second fact: A good speech and an oration are two different things.

A good speech is a message that gets across to the audience clearly and quickly in a conversational, interesting way. It demands of its deliverer a thorough knowledge of his subject, an enthusiasm, and sincerity. That is all.

An oration, on the other hand, is an inspired talk made by a master of phrases, ad-libbing, and the techniques of delivery. It calls for much talent, and should be left alone, as poison, by most business-men speakers. Their job is to communicate to a group, not to emulate Churchill (read "What Listeners Expect of You, page 63).

A business expert always has every ingredient of a good talk at his fingertips. Being so familiar with his work, he can talk on it knowingly and sincerely. And who has found even one

American business man not enthusiastic about work?

With only his normal amount of information, of sincerity, and of enthusiasm, therefore, the executive can deliver a *good* speech that makes his listeners believe him, understand him, and follow him.

But they don't. More often than not, he feels they have betrayed him, instead, into sudden death. Actually, his traitors have been Time, Silence, Nervousness, The Unexpected, and similar factors that he can handle smoothly with a little practise.

Nervousness: Expect it as part of the deal. The enthusiastic speaker is tense with his desire to

put across his ideas. Lack of nervousness worries us, report professional speakers, it may mean we are losing interest in our work.

Real panic takes hold of people generally during the first four minutes of facing an audience. To clear your mind, *wait out* these awful moments in silence. The professional knows something you should realize, too: During that opening period, the audience does not care what happens up front. In large meetings, it is busy brushing dinner crumbs away, scraping chairs, lighting cigarettes, and making itself comfortable.

As you stand silently collecting yourself, the listeners, instead of you, suddenly feel on the

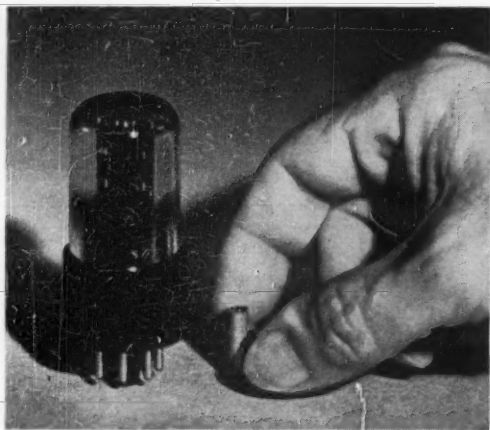
Continued on page 63



Speechmaking aids abound. Some cost plenty, others don't. This Teleprompter, once used by Eisenhower, was rented by Evansville Manufacturers & Employers Assn.

RECONSIDER YOUR PROPERTIES

Are they the right size?

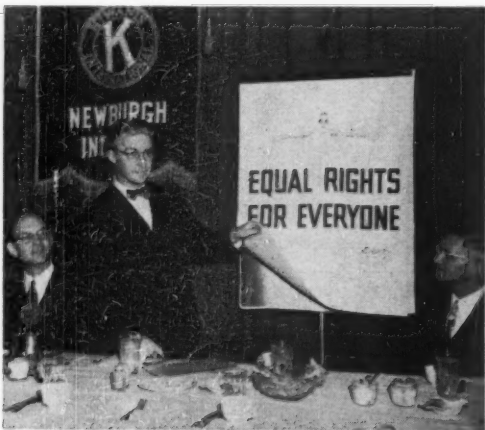


Be sure the audience can see what you are showing them. Size of real transistor (compared here with standard tube) makes it useless as a prop.



Here is a 100-to-1 scale model of the transistor which Bell System people use whenever the tiny item (left photo) must face an audience.

Can they have a new twist?

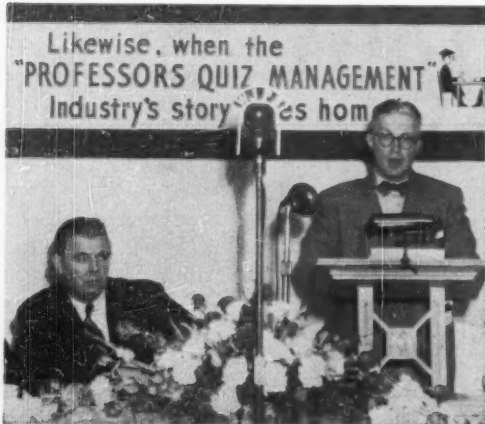


The typical flip chart was made into novel yet useful listeners' guide (photo, right) by Evansville Manufacturers & Employers Association.

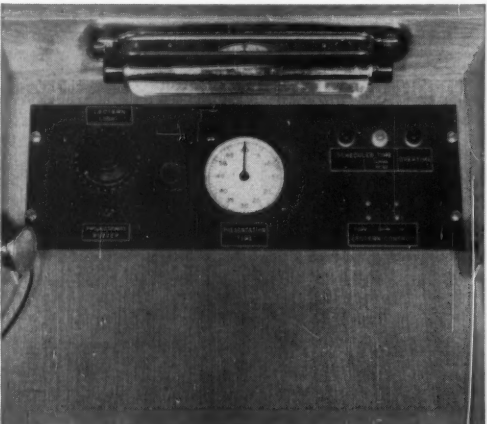


Individual, small flip charts were hidden under each table's centerpiece until speech time. Later, they were also mailed as sales brochures.

Are they worth the trouble?



This moving sign followed key points of T. J. Morton, Jr., head of Hoosier Cardinal. Such props are worth-while only when they work for sure.



Standard Oil Development's special lectern has devices to hurry long-winded speaker, including a smoke bomb. It's used in the family circle.

An argument used by people who favor props is: "Don't make audiences imagine; where possible, show the things you're talking about."

But unless props are the right size to be seen easily, the audience must go right on imagining. So:

Always make an educated guess on how big the group will be; then figure which is best, the real thing, mock-ups, or slides.

More size problems: *Will it fit?* Find out ahead of time if props will go into meeting room. Hotel doorways, for instance, are narrower than you know; and speakers' platforms can shrink before your eyes. *Do you need an assistant?* If props are too much for one man to handle, have rehearsed help stand by for instant action. When the speaker does too much, his activity distracts the audience.

A new twist on an old gimmick adds punch when it is executed properly. For instance, the tempo of the meeting would have been slowed up by the novelty pictured here, if waiters had passed out the charts. Instead, the speaker announced, at the right moment, where they were skilfully hidden so one person at each table could do the distributing.

When dreaming up new twists:

Be specific. A gimmick, no matter how novel, must be clearly related to the contents of a speech, or it won't serve its purpose. *Keep twist simple.* Otherwise, prop dominates the speaker. Some illuminating tricks, for example, may make charts glow, but distract the audience with the queer effects they give a speaker's face. *Test it* by asking: "Is its appeal so colorful, so un-businesslike that it distracts people?"

Many props simply are not worth the trouble, if they are mechanically cantankerous, if they create unavoidable commotion, or if they are works of art whose points could be made as well through a simpler, though less colorful, means.

Listeners, for instance, will follow a plain pie chart much better than a magnificently hued, detailed line graph—a chart that is always hard for the uninitiated to read.

One vice-president estimated that for every chart he used in his talks, he was wasting one-half minute of his audience's valuable time because of the shifts and changes they involved.

The audience is a severe judge of props. As it looks, it mentally asks: "Is this necessary, is it appropriate, accurate, convenient, simple?" Answer these questions ahead of time, before you spend time or money on a prop.

Continued from page 61

spot. Just listen to how the chairs stop squeaking, and how the muted cross-table conversation dies completely. People wonder uneasily about your intentions. At this minute, you announce your subject. Relieved that you have spoken, they listen closely. You've got them with you, although you have done absolutely nothing for four minutes.

When your audience is so small it won't take four minutes to settle down, try these tricks to conquer opening panic. Read, word for word, or memorize the first two paragraphs; although you rely on abbreviated notes for the rest of your speech. Then, if your knees still knock, take time to pause. Straighten your back to strengthen your knees and hands. Take a deep breath to put power back into your voice, and briefly drop your head to relax tense vocal chords.

To the audience this pause is no sign of weakness. It marks you as a learned man who is silently thinking on his feet—something few people can do. Having paused, start talking to a friendly face near you, gradually shifting your delivery to someone in the very back row.

How helpful properties are to speechmaking is a controversial issue. Those favoring them, consider props, among other benefits, a boon to the executive who hates to make a public address. Cued by his props, the argument goes, he can keep to his subject, and develop his ideas in the proper sequence; using all the while a relaxed, conversational tone rather than a stiff man-reading-a-proclamation inflection.

The president of Bettinger Corporation, R. A. Weaver, Jr., is a firm believer in props. Says Weaver, "My father's advice was, 'If you cannot give a good speech, at least give something away.'"

Weaver will go to no end of trouble to have enough interesting props shipped to wherever

he gives a talk. At an American Ceramic Society Symposium, for example, he gave to each person in the audience (125 attended) a porcelain enamel ash tray, a set of six mounted pictures showing processing at Bettinger, and test samples of high-temperature coated foil to emphasize the points of his subject—high-temperature coatings. On the speaker's platform, he had six good-sized pieces of actual parts.

When props backfire, though, they can give anyone a bad case of nerves. So, reconsider your props, by checking the points on page 62.

Getting and holding your audience: There's no hope for this, if you disregard the basic demands of listeners which are listed below. However, certain little tricks add a nice frosting to a routine relationship between speaker and listener.

Audiences Go For This

Here are a few used by George Kenning, now executive director of Management Relations Division, Kelly-Read & Company, Inc. Kenning learned the hard way, through trial and error, when his job with General Motors Institute as director of management development, Eastern area, called for constant speaking up and down the coast.

Kenning enlists the sympathy of listeners by making them feel he is one of them. On purpose he is apt to be without cigarettes, a pencil, or matches. In a small, family-type group he finds he has to borrow someone's manual. He has left his at home. In a larger gathering, say a Lions' Club luncheon, it's a cigarette that he needs, please.

He also wins the audience's affection by appearing before it empty-handed. Listeners, Kenning believes, are alarmed as soon as they see the speaker sag with "things," or walk up to a

table overflowing with mysterious objects that, to them, mean only one thing, "Good Lord, look what we're in for."

"If you have props," says Kenning, "keep them concealed, bringing them into view as the need arises." (He belongs to the group which does not favor props. He thinks they make you worry more about your tools than your subject matter.)

Having won listeners initially, he likes to put them to work, make them participate, as one way to hold them. "It doesn't bother me," he points out, "to inconvenience my listeners somewhat, if what I do makes them think, or worry a little. When they do this, it takes some of the spotlight off the fellow (me) up front, and throws some of the burden of speechmaking on them. (Of course, he adds, before they've left the room, I've done some worrying, too, as I watch their reactions and try to shift my tactics to match the situation.)"

Being put to work by a Kenning talk could mean using paper and pencil to draw your own chart, instead of gazing upon a large one that the speaker obligingly provides.

Or it may mean working to keep up with Kenning as he takes a walk to another spot in the room. "Not a jittery pacing," he warns, "but a saunter to a nearby window, perhaps, where I glance out as I make a point; then repeat the point as I go back to the speaker's place."

If this device seems a little fantastic, remember, Kenning, from long practise, finds it helps keep the audience with him; it takes only a few seconds; and it gives him a good opportunity to repeat a point which he wants to emphasize anyway.

It is *not* an excuse for some shy speaker to talk to the wall; it is a reflection of what the skilled speaker already knows: Controlled, well-timed movement is a desirable way to hold an audience. This principle can be applied, with

What listeners expect of you

1. *A plan that you stick to.* Listeners demand that you know what you want to say, the order in which you should say it, and what you expect them to do about it. Then, they wish you'd stick to the plan. Ad-libbing is the last thing they want from you, the business man speaker.

2. *A message with a point; not an oratorical show.* Strangely enough, they don't desire a personality exhibit. Quite the contrary. They want you to lose yourself in them; showing why they should listen to you, why they must believe you, and why your talk is worth-while to them. You are supposed to get down to cases immediately, kindle their interest with the opening sentence, and almost as quickly answer their unspoken, suspicious questions of "Why bring that up?" and "So what?"

3. *Courtesy.* Listeners expect that you will not rudely ignore the point at which their eyes dull and they discreetly squirm. You should, they think, spot their discomfort, and politely end your speech. Courtesy includes minding your platform manners: Don't carry on a jolly conversation with the chap who introduced you; it's of no interest to the third party present—your audience. Don't waste listeners' valuable time by taking them the long way round to the point of your speech. Don't strain their talent for polite laughter; they fancy their own jokes rather than yours. Don't sway, teeter, shuffle, hide your hands, and adjust your clothes.

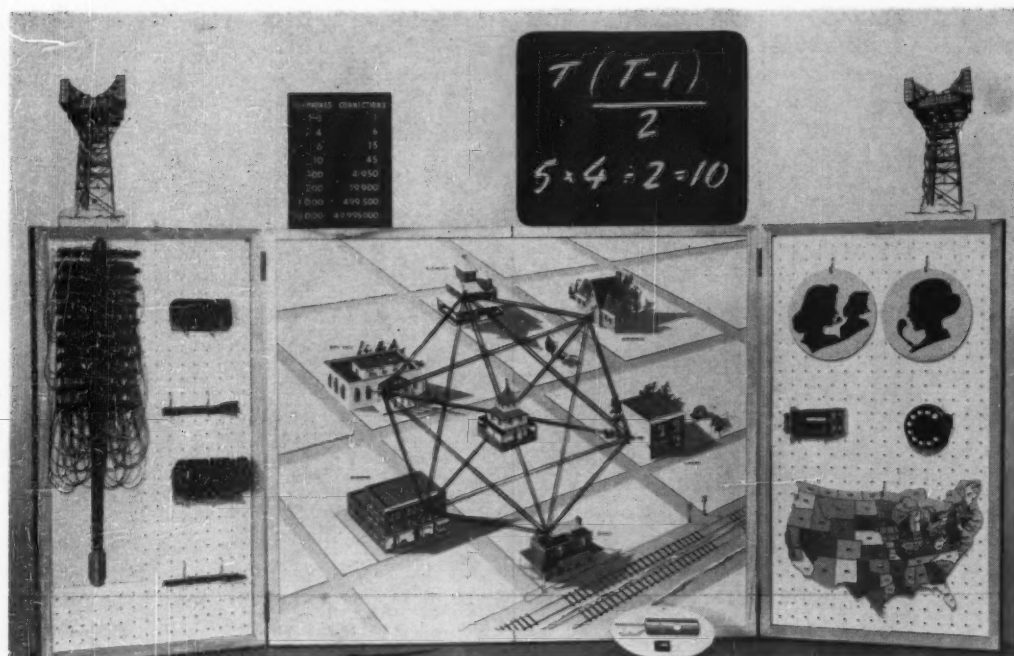
What host organizations expect of you

1. *Time consciousness.* Organizations much prefer a speaker to end ahead of time, rather than run five minutes over. They also like it when, at some point in his talk, the speaker relaxes the audience by announcing his awareness of the hour—and how much time he has left. Very much begrudged is the ten minutes a speaker takes for an oratorical "in conclusion" that rewarms cold ideas, and ends by repeating "in conclusion." Hosts also expect you to arrive sooner than two minutes before your speech, and stay longer than 60 seconds after it's over.

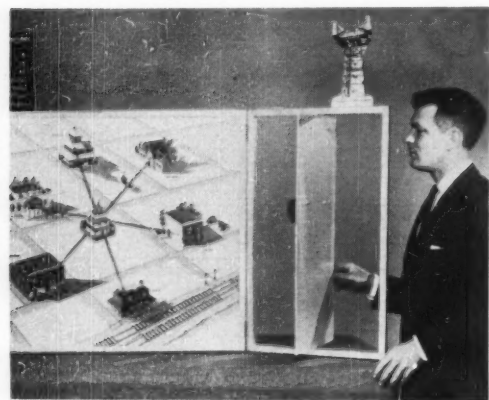
2. *A conversational account of what you know best;* not an imitation of a flamboyant oration. Host organizations invite business men to speak *because they know business.* If the subject is taxation, they hope you will drive home your points with illustrations from your daily business life, not with sad commentaries on 20th century political thinking. They expect you to develop your talk around three clear, amplified ideas at the most, not ten or 20. And they wish you wouldn't keep your speech a secret from them until the moment you say "Ladies and gentlemen. . . ."

3. *Anecdotes rather than jokes.* Even with an all-male audience, host organizations prefer a business man speaker to tell an anecdote. The jokes don't point up the subject matter, as a rule. Eight or ten anecdotes, though, makes the host wonder why he thought you knew your stuff.

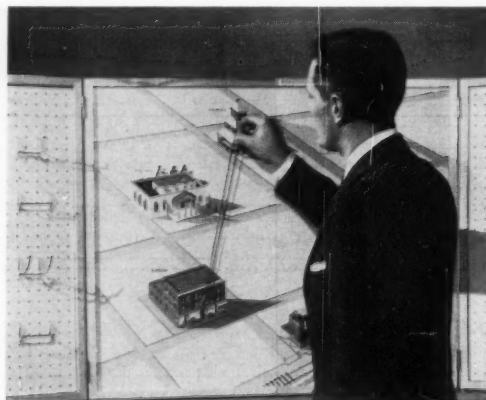
It makes a complex story simple



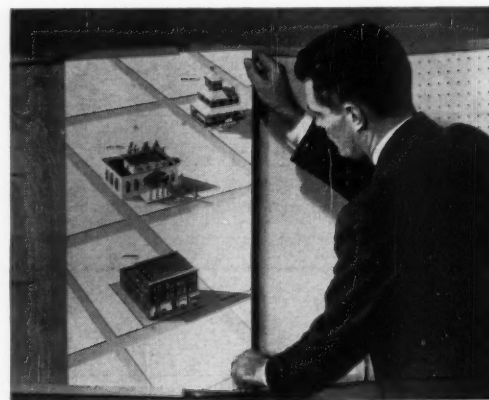
Note how aid is kept to one-piece unit though it tells three tales: growth of phone industry, center; how phones are connected, left; how conversation is carried, right. Where possible, props are real items: phone dial, lead-covered cable. For new stories, change center piece; hang other props on panels.



More space: panels pivot; are easily made from perforated Masonite. Complex, mechanical motion was avoided. Parts, props are hand worked.



Cheap, rubber-band phone wires help to visualize industry's intricacy; startle audience by their snap when they are cut later to prove a point.



By cutting heavy-stock show card in two, unit's collapsibility is improved; and a spare to replace worn card will slide in from either side.

reservations, to any size group. A walk when 500 people are present may not be a good idea, but you still do not need to stay glued to one spot. Step down for a few moments from the platform to talk at the audience's level. For such reasons, many speakers prefer a traveling mike.

Handling the unexpected: To the speaker, the unexpected is often catastrophic. Take the case where he is the main feature, and has been allotted one hour to talk. The chairman, however, has permitted a long-drawn-out business meeting and an entertainment routine to precede the "honored" guest.

What can this guest do? Throttle the chairman? If he does, that still leaves him with an audience which has sat too long, glances nervously at the clock, and thinks of beds, trains, and unfinished work.

It's enough to make even an orator mute, unless he is prepared for just such a nightmare. Most of them are, and the business man can be, too. One way is to have a short-cut approach to your subject up your sleeve.

This is less work than you might think. Kenning, for instance, found himself on a ten-minute TV program. He had been asked to discuss a

specialty of his, working successfully with people by recognizing their ten basic needs. (What those needs are; how you spot them, and so on.)

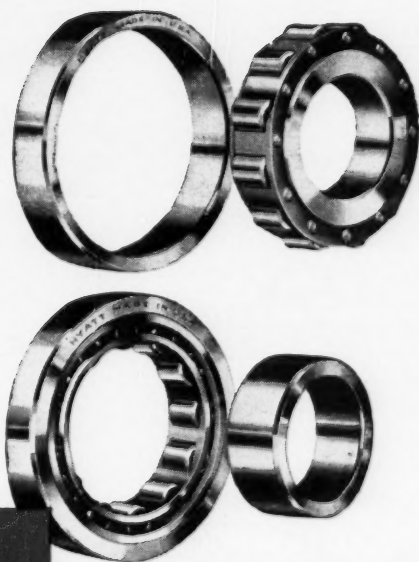
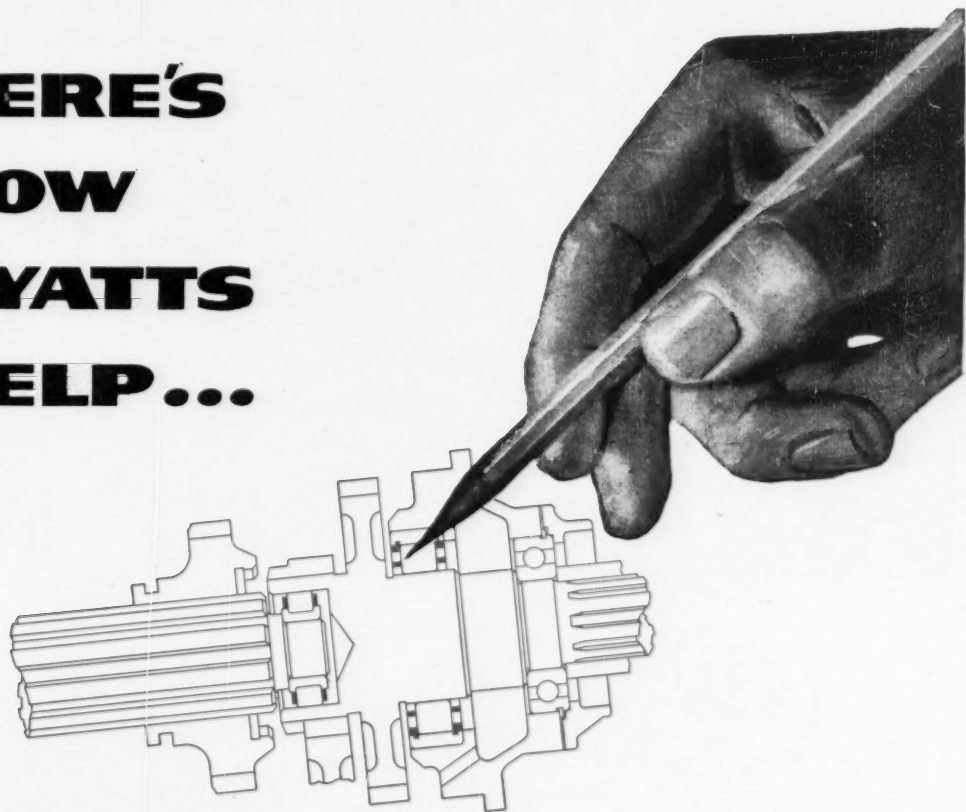
Instead, he wound up with only two minutes, giving the following short-cut version that he had planned beforehand: His definition of a need, which he then illustrated by the example of one need (the need for ownership as exhibited by his young son). He concluded, "There are ten such basic needs; that is one of them."

Ad-lib cutting of your material as you go is never a way out of an emergency. One practiced

Continued on page 89

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The Trend of BUSINESS

HOWE PHOTOGRAPH

production
prices . .
trade . .
finance .

Continuing confidence was expressed in the latest Dun & Bradstreet Survey of Business Men's Expectations. Construction activity was at an all-time high; new housing starts, at a seasonally adjusted annual rate of 1.2 million, were the highest in a year. Stock prices climbed to their highest level since 1929 and prices for non-ferrous metals rose contra-seasonally. Unemployment, after increasing 500,000 in February, steadied in the latter part of March. Agricultural employment increased sharply.

WHILE the executives interviewed in the latest DUN & BRADSTREET survey of business men's expectations were slightly less optimistic than in the preceding survey, the majority (71 per cent) still thought that their net sales in the second quarter of 1954 would be at least as high as a year ago. The latest survey is based on interviews by trained DUN & BRADSTREET reporters with executives of 1,279 business concerns in the period February 23 to March 5. These are second quarter expectations.

PER CENT OF BUSINESS MEN EXPECTING

	Increase	No Change	Decrease
Net Sales	43	28	29
Net Profits	37	37	26
Selling Prices	12	74	14
Inventories	22	49	29
Employment	11	70	19

Manufacturers of non-durable goods expected that their second-quarter 1954 sales and net profits might exceed the year-ago level more frequently than did the other business men. They also expected reductions in their orders, inventories, and the number of their employees less frequently than the other executives.

Some stability in employment seemed likely—the proportion of the executives expecting the number of their employees to equal, or exceed the year-ago level ranged from 76 per cent of the wholesalers to 87 per cent of the manufacturers of non-durable goods.

Weekly Business Signposts

SELECTED BUSINESS INDICATORS	LATEST WEEK*	PREVIOUS WEEK	YEAR AGO
Steel Ingot Production Ten Thousand Tons	159	162	232
Bituminous Coal Mined Hundred Thousand Tons	69	63	86
Automobile Production Thousand Cars and Trucks	145	132	159
Electric Power Output Ten Million K.W. Hours	852	859	814
Freight Carloadings Thousand Cars	610	591	700
Department Store Sales Index Number (1947-1949=100)	92	85	100
Wholesale Prices Index Number (1947-1949=100)	111	111	110
Bank Clearings Hundred Million Dollars	914	781	946
Money in Circulation Hundred Million Dollars	298	299	297
Business Failures Number of Failures	243	229	160

*Steel, automobile, price and failures data are for the third week of March; all other figures are for the second week.
Sources: Amer. Iron & Steel Inst.; U. S. Bureau of Mines; Automotive News; Edison Electric Inst.; Amer. Assoc. of Railroads; U. S. Bureau of Labor Statistics; DUN & BRADSTREET, INC.

Industrial production in February and early March was almost unchanged from the January level and continued to be moderately below the early 1953 mark. The expected upturn in March did not materialize and most observers anticipated that any increase in output would be delayed until the second quarter.

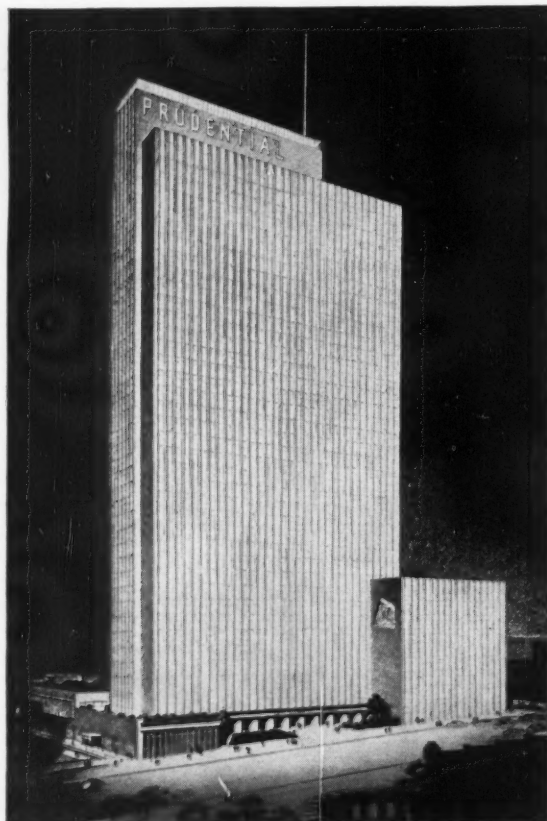
As measured by the Federal Reserve Board, industrial production in February stood at 123 (1947-1949=100). This was 1 per cent below January, 8 per cent below a year ago, and 10 per cent below the July 1953 post-war peak.

Despite the continuing slide in production, optimism among manufacturers was sustained as new orders rose. Among those industries reporting increased orders were machine tools, farm machinery, and some consumer goods. Manufacturers' sales in January were placed at \$22.9 billion. This was 5 per cent below the preceding year.

Steel production in February amounted to 7.1 million tons. This was 21 per cent below a year ago and 10 per cent below a month ago. In early March, the steel operating rate slipped four points despite the increased level of orders. New orders were concentrated among the smaller manufacturers and there was little bulk buying; however, some observers thought that the increased level of small orders presaged

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increase order from the heavier consumer.

Automobile production in February amounted to 529,120 vehicles. This was 5 per cent below January and 10 per cent below a year ago. Output was reduced somewhat as retail sales lagged behind the 1953 rate; however the spurt in car sales in late February and early March resulted in an upward revision of some output schedules.

Durable goods manufacturing continued to reflect a greater decrease from the preceding year than did non-durable goods.

The output of non-durable goods was somewhat below a year ago and unchanged from the preceding month. Chemical, rubber, and paper output was virtually unchanged from a year ago; textile and food production were approximately 6 per cent below the 1953 level.

Construction activity in February amounted to \$2.3 billion, a new high for the month of February. This was 2 per cent above a year ago and 5 per cent below the January mark. The month-to-month decrease was mainly seasonal. Private residential building outlays were 2 per cent higher than in February 1953.

Labor and Income Employment in February increased from the January level and stood at 60.1 according to the Bureau of the Census. The increase was somewhat less than is customary for this time of the year. There were increasing signs that the decline in employment had run its course and an upturn was expected in March. A decrease in manufacturing industries occurred as employment in non-manufacturing continued to be at a sustained high level.

Unemployment as measured by the Bureau of the Census in the early part of February stood at 3.7 million. The January comparative was 3.1 million. The number of jobless constituted 6 per cent of the labor force, according to the new Census estimate.

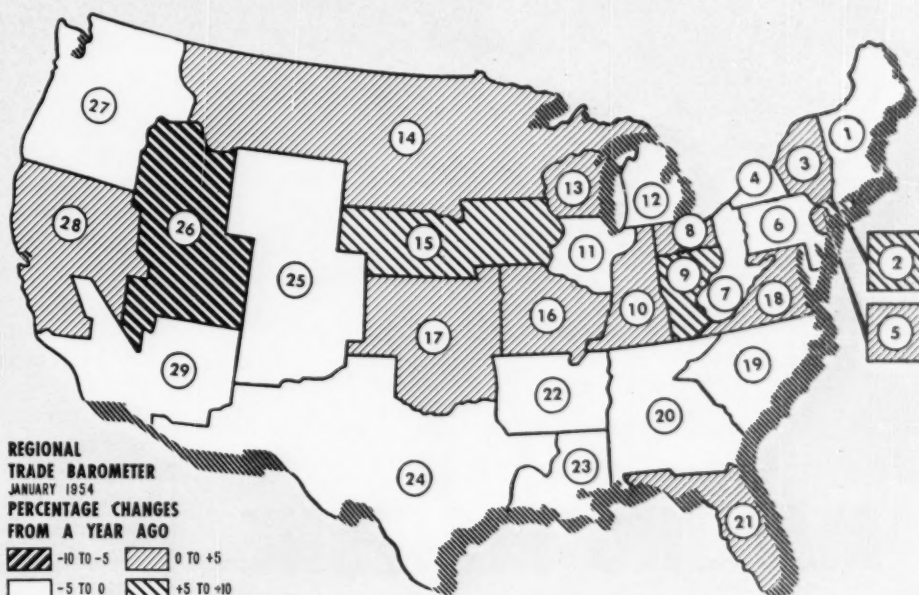
New claims for unemployment insurance steadied in the latter part of February and reflected more than a seasonal decrease. For the week ended March 6, the total number of claimants totalled 7.2 million. Unemployment insurance covers approximately 35 million workers. These workers are concentrated in manufacturing; sometimes there is a bias in these figures. They are most useful in determining the general direction of unemployment rather than the number of jobless.

Farm employment in February amounted to 5.7 million. A month ago, the number of agricultural workers totalled 5.3 million and a year ago 5.4 million. The month-to-month increase was more than is customary. Part of the increase was a result of the return of laid-off industrial workers to farms.

The average weekly earnings of all manufacturing workers in February stood at \$70.71. This was fractionally below the preceding month and less than 1 per cent under the 1953 level. Average hourly earnings stood at \$1.79. The average work-week for manufacturing workers rose

Regional Trade Barometers

(1947-1949=100)



	INDEX	% CHANGE FROM		
		Jan. 1954	Jan. 1953	Dec. 1953
United States.....	130.8	+0.2	0.0	
1. New England.....	115.7	-0.4	+2.4	
2. New York City.....	129.8	+7.7	+5.9	
3. Albany, Utica & Syracuse.....	130.6	+2.6	-1.3	
4. Buffalo & Rochester.....	128.3	-0.9	-5.5	
5. Northern New Jersey.....	130.2	+2.6	+3.6	
6. Philadelphia.....	116.7	-1.7	-2.2	
7. Pittsburgh.....	128.8	-2.9	+2.7	
8. Cleveland.....	137.7	+2.2	+3.0	
9. Cincinnati & Columbus.....	139.8	+6.6	+5.4	
10. Indianapolis & Louisville.....	134.5	+2.2	-3.9	
11. Chicago.....	122.4	-0.8	+0.2	
12. Detroit.....	128.0	-1.9	-0.7	
13. Milwaukee.....	127.3	+0.5	+3.2	
14. Minneapolis & St. Paul.....	117.8	+4.7	+1.1	

	INDEX	% CHANGE FROM		
		Jan. 1954	Jan. 1953	Dec. 1953
15. Iowa & Nebraska.....	124.0	+6.4	+5.7	
16. St. Louis.....	125.2	+3.2	-2.4	
17. Kansas City.....	124.3	+0.2	-0.2	
18. Maryland & Virginia.....	132.9	+2.1	+3.0	
19. North & South Carolina.....	130.2	-4.4	-5.6	
20. Atlanta & Birmingham.....	136.8	-0.3	+1.9	
21. Florida.....	149.5	+3.9	+3.3	
22. Memphis.....	119.6	-0.8	-3.2	
23. New Orleans.....	128.0	-5.0	-2.3	
24. Texas.....	145.4	-1.3	+5.6	
25. Denver.....	126.8	-0.6	-1.0	
26. Salt Lake City.....	122.9	-7.7	+1.8	
27. Portland & Seattle.....	121.3	-3.4	+2.7	
28. San Francisco.....	124.9	+0.3	+4.3	
29. Los Angeles.....	135.3	-3.4	-0.2	

from January to 39.5 hours. This was 3 per cent below the early 1953 level.

Personal income in February dipped from the January level of \$282.5 billion. However, it remained fractionally above the year-ago mark. The bulk of the decrease centered in wage and salary disbursements. As laid-off industrial workers turned to lower-paying jobs, it was anticipated that income might slide somewhat further.

Agricultural income in January was placed at an annual rate of \$17.3 billion. This marked the first month-to-month decrease in farm income since August 1953. Cash receipts from farm marketings in January were placed at \$2.7 billion. This was 3 per cent below the preceding year. However, the unit volume of farm marketings were unchanged from a year ago as prices received by farmers declined by the same percentage.

Barometers Consumer spending in January was unchanged from the preceding month according to the DUN'S REVIEW Regional Trade Barometer. The barometer stood at 130.8 (1947-1949=100); this was 5 per cent below the all-time high which was reached last March. The barometer is adjusted for seasonal variation and the number of business days in the month. Spending in the Salt Lake City Region (26) reflected the greatest decrease from a year ago, 8 per cent. However, it was 2 per cent above the December level. Mining activity, a major source of income in this region, has been cut back sharply in some instances. Pressure on domestic prices of lead and zinc from foreign imports have lowered prices. In an effort to reduce stocks, mining output has been cut. However, construction activity continued to hold at a high

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The Trend of BUSINESS

level as evidenced by a 3 per cent increase from a year ago in building permits in January.

Spending in the Pittsburgh Region (7) dipped 3 per cent below the year-ago mark and was 3 per cent above the December level. As the strike of delivery workers, which began in late November, continued, purchasers resigned themselves to the inconvenience and spent somewhat more freely. However, recent cutbacks in steel employment coupled with the lower level of mining income have resulted in a lower level of spending than at this time last year. The small mining towns in Pennsylvania and West Virginia are among the areas most severely affected by the decreased mining income. Grocers reported striking changes in food purchasing habits in these areas. Merchants continued to attempt to stimulate trade by means of liberal credit terms. However, as collections lagged, they became somewhat hesitant.

The barometer for the Kansas City Region (17) was almost un-

changed from both a year ago and a month ago. Some decline in the spending rate was anticipated unless the drought eased. Crop damage from dust storms had yet to become severe. However, there was some concern expressed that the Dust Bowl of the 1930's was again in evidence.

Trade According to the preliminary estimate of the Department of Commerce, retail sales in February amounted to \$11.9 billion. This was 3 per cent below a year ago and a month ago. The month-to-month decrease was less than is customary.

In the latter part of February, volume in durable goods rose markedly. There had been a slight hesitation in the spending rate in January and early February. The rate of new installment purchasing seemed to have slowed perceptibly from last year's record level.

New car sales in February were 10 per cent below the high level of the preceding year but rose from

(Continued on page 75)

Industrial Production

Unadjusted Index: 1947-1949 = 100; Federal Reserve Board

	1951	1952	1953	1954
January	121	119	132	124
February	123	123	136	123†
March	124	123	136	
April	123	120	136	
May	121	118	136	
June	122	118	136	
July	111	118	129	
August	111	118	136	
September	121	118	135	
October	122	118	136	
November	120	134	130	
December	118	131	125	

† Approximation; figure from quoted source not available.

Consumers' Price Index

Index: 1947-1949 = 100; U. S. Bureau of Labor Statistics

	1951	1952	1953	1954
January	108.6	113.1	113.9	115.2
February	109.9	112.4	113.4	115.3†
March	110.3	112.4	113.6	
April	110.4	112.4	113.6	
May	110.9	113.0	114.0	
June	110.9	113.4	114.5	
July	110.9	114.1	114.7	
August	110.9	114.3	115.0	
September	111.6	114.1	115.2	
October	112.1	114.2	115.4	
November	112.8	114.3	115.0	
December	113.1	114.1	114.9	

† Approximation; figure from quoted source not available.

Wholesale Commodity Prices

Index: 1947-1949 = 100; U. S. Bureau of Labor Statistics

	1951	1952	1953	1954
January	115.0	113.0	109.9	110.8
February	116.5	112.5	109.6	110.7†
March	116.5	112.3	110.0	
April	116.3	111.8	109.4	
May	115.9	111.6	109.8	
June	115.1	111.2	109.1	
July	114.2	111.8	110.9	
August	113.7	112.2	110.6	
September	113.4	111.8	111.0	
October	113.7	111.1	110.2	
November	113.6	110.7	109.8	
December	113.5	109.6	110.1	

† Approximation; figure from quoted source not available.

Industrial Stock Prices

Monthly Average of Daily Index: Dow Jones

	1951	1952	1953	1954
January	244.45	271.71	288.47	286.64
February	253.32	265.19	281.94	292.12
March	249.50	264.48	286.79	
April	253.36	262.55	275.28	
May	254.36	261.61	276.84	
June	249.32	268.39	266.87	
July	253.36	270.00	270.37	
August	261.32	276.70	272.26	
September	273.36	272.40	261.80	
October	269.73	267.77	270.73	
November	259.61	276.37	277.09	
December	266.08	285.95	281.15	

Based on closing prices of 30 industrial stocks.

Employment

Millions of Persons: U. S. Bureau of the Census

	1951	1952	1953	1954
January	61.5	61.8	62.4	59.8
February	61.3	61.8	62.7	60.8
March	62.3	61.5	63.1	
April	61.8	61.7	62.8	
May	61.8	62.8	63.0	
June	61.8	64.4	64.7	
July	64.4	64.2	64.7	
August	64.2	64.0	64.6	
September	63.2	63.7	63.6	
October	63.5	63.1	63.4	
November	63.2	63.6	63.3	
December	62.7	62.9	62.8	

Includes all civilian workers.

Retail Sales

Billions of Dollars: U. S. Department of Commerce

	1951	1952	1953	1954
January	12.6	11.8	13.0	12.4
February	11.7	11.7	12.3	11.9†
March	13.4	12.7	14.0	
April	12.5	13.4	14.2	
May	13.3	14.4	14.7	
June	13.3	13.8	14.6	
July	12.4	13.4	14.1	
August	13.3	13.6	14.2	
September	13.3	13.6	14.1	
October	13.9	14.8	15.0	
November	13.4	14.0	14.0	
December	15.4	16.9	16.4	

† Approximation; figure from quoted source not available.



Every Big Business was Small Once!

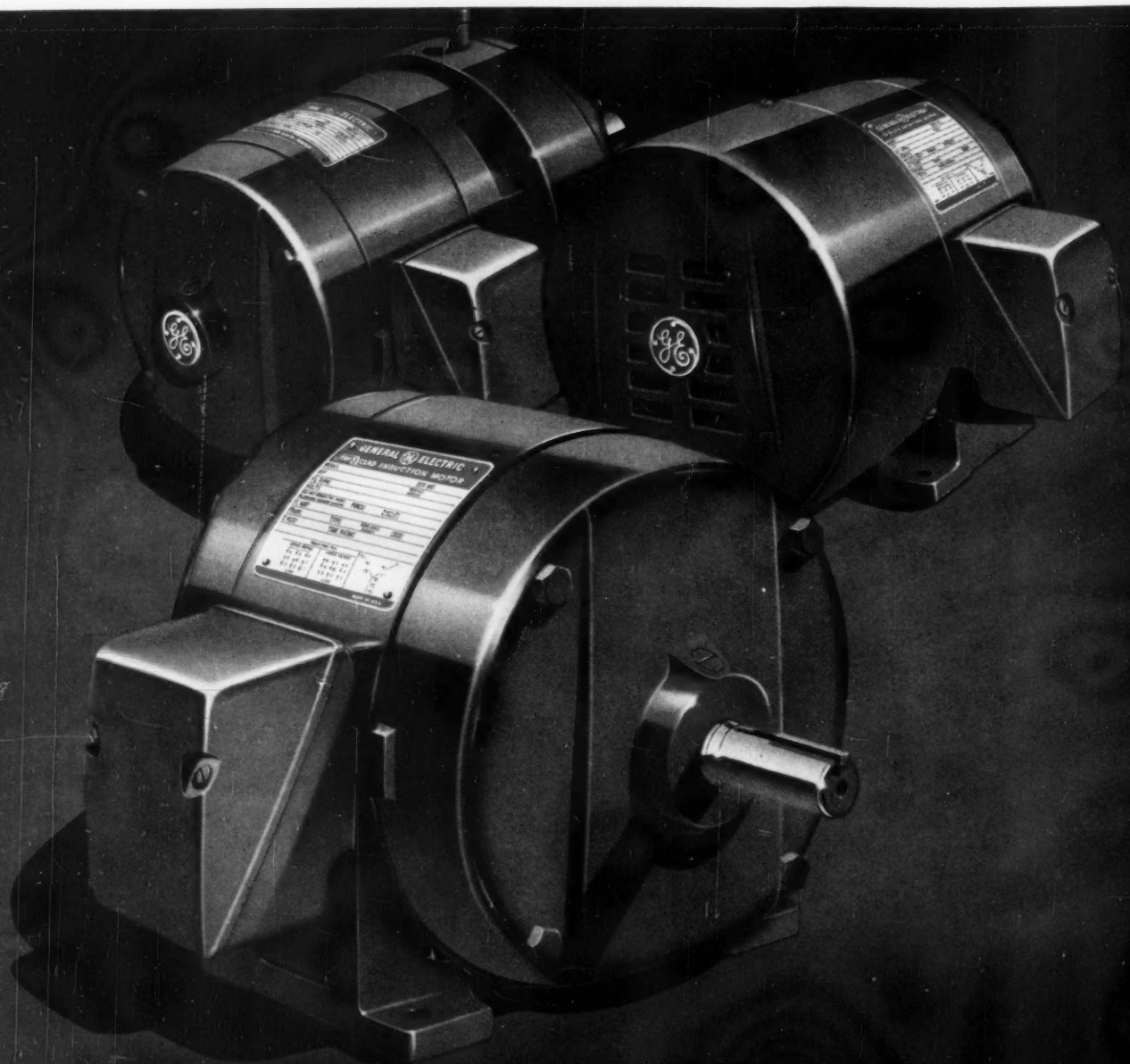
This illustration is based on a photograph made in 1944 by a credit reporter from a southern office of Dun & Bradstreet who carried a camera in his car, partly for his own amusement, and occasionally as an aid in his credit investigations. A local wholesale confectioner had received an order for \$10.00 worth of candy bars from the Horsie Hollow Candy Shop. It was a first order, and when the credit manager didn't find the name listed in the Reference Book, he phoned the Dun & Bradstreet office for a report on the venture. The reporter assigned to the case located the concern on a dirt road, just off a main highway, and he took the snapshot of the premises and its busy proprietors. He interviewed the owners and wrote a report which was forwarded at once to the wholesaler. It informed the wholesaler that the enterprise was operated as a partnership by two neighbors who were both "eleven years of age and unmarried." The reporter also observed that "although the owners are men of limited means, they have a high standing in their community." The financial statement indicated assets of \$13.25 in merchandise and cash, with a valuation of \$35.00 for the building consisting of a remodeled turkey coop. The partners were reported as experienced with their home pantries as the principal sources of supply. There was no indebtedness as their mothers' terms were strictly C.O.D. The wholesaler took a more liberal attitude and shipped on regular terms. The bill was paid in ten days, and the wholesaler opened an account on his ledger sheet for the "Horsie Hollow Candy Shop."

The spirit of enterprise is young—eternally young. Opportunity beckons to all ages, but the urge "to start something" is most insistent in the mind of youth. Achievement in our land reflects the imagination, ideals and energy of young people.

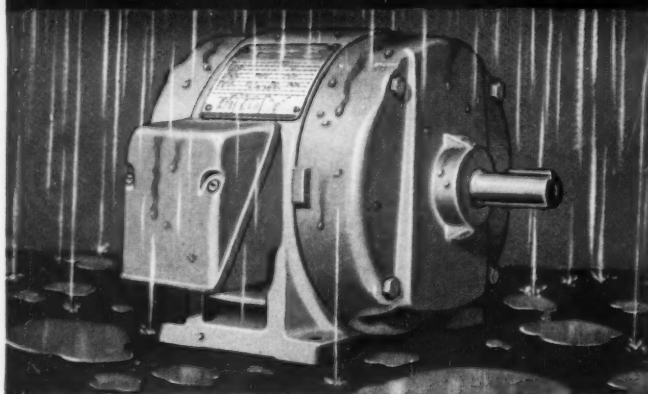
Businessmen in our country, always young in spirit, are willing to take the personal risks of today for the rewards of tomorrow, because every man in business is in partnership with the future. Tomorrow always comes, and as long as our sons find a hammer, nails and a few boards, they will build for the future, with the same fervor and courage as their fathers and grandfathers, and the echoes of their hammers will resound hopefully through every corner of the world.

Dun & Bradstreet, Inc.

Full-color copies of "Every Big Business Was Small Once!" are available on request to Dept. 10, Dun & Bradstreet, Inc., 99 Church St., New York 8, N. Y.



YOU GET EVEN LONGER MOTOR LIFE



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EXTRA ELECTRICAL STRENGTH is assured by use of new polyester film insulation. A silicone coating, Dri-film,* virtually eliminates stator insulation failure caused by moisture.

*REG. U.S. PAT. OFF.

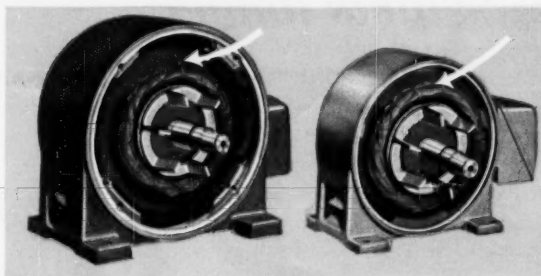
TRI 55 CLAD
REG. U.S. PAT. OFF.

THE LEADER IN MODERN MOTOR DESIGN

GENERAL ELECTRIC ANNOUNCES...

THE ALL-NEW **TRI 55 CLAD** MOTOR

REG. U.S. PAT. OFF.



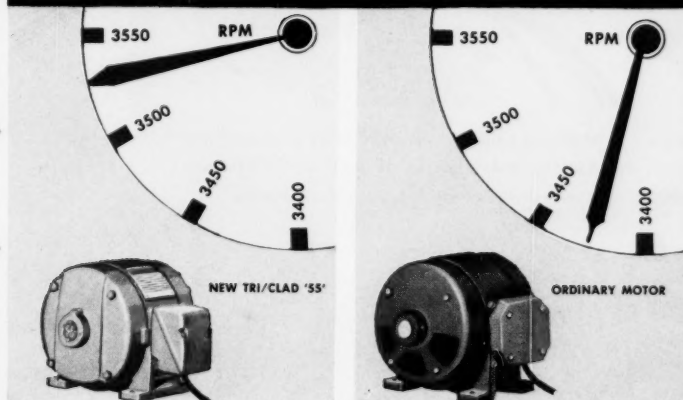
LIGHTER, SMALLER Tri/Clad '55' motors have been made possible through better use of space within the frame. Active materials (magnetic steel, copper) have not been sacrificed.

Complete Line of Dripproof, Enclosed Motors and Gear-Motors Available in Most Ratings in 1954

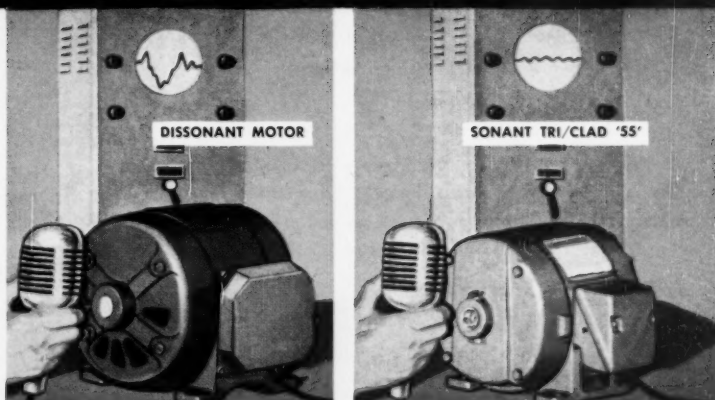
Here's the all-new Tri/Clad '55' motor — now available in NEMA 182 and 184 frame sizes.

You can get complete information on this dramatic motor achievement by writing for bulletin GEA-6013 on Tri/Clad '55' Dripproof motors, GEA-6012 on Tri/Clad '55' Enclosed motors, or GEA-6027 on Tri/Clad '55' Gear-motors, or by contacting your nearby G-E Apparatus Sales Office or G-E Motor Agent. General Electric Company, Section 648-1, Schenectady 5, N. Y.

YOU GET EVEN BETTER PERFORMANCE



HIGHER FULL-LOAD SPEEDS is only one of many improved characteristics of this new G.E. motor. Above shows comparison of an ordinary motor with the Tri/Clad '55' — both rated at 3600 rpm.



SONANT OPERATION of the new Tri/Clad '55' motor has been laboratory tested and proven. Motor operates at reduced noise level, and operating sound is pitched to a more pleasant frequency.

YOU GET EVEN MORE INSTALLATION AND MAINTENANCE SAVINGS



NEW BEARING SYSTEM allows this motor to run longer than other motors without regreasing. One reason—greatly improved synthesized grease with 8 times the mechanical stability of ordinary grease.



EASIER TO SERVICE, the new Tri/Clad '55' has larger conduit box diagonally split for simplified wiring. Perma-numbered leads mean that even clipped and stripped wires are instantly identified.

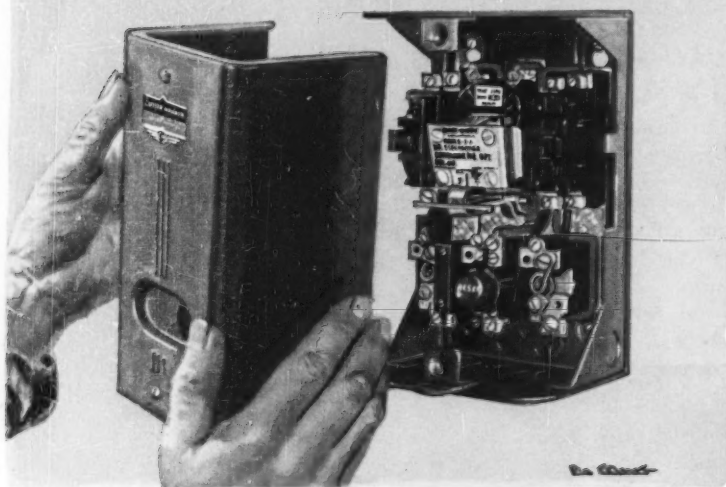
Progress is our most important product

GENERAL  ELECTRIC

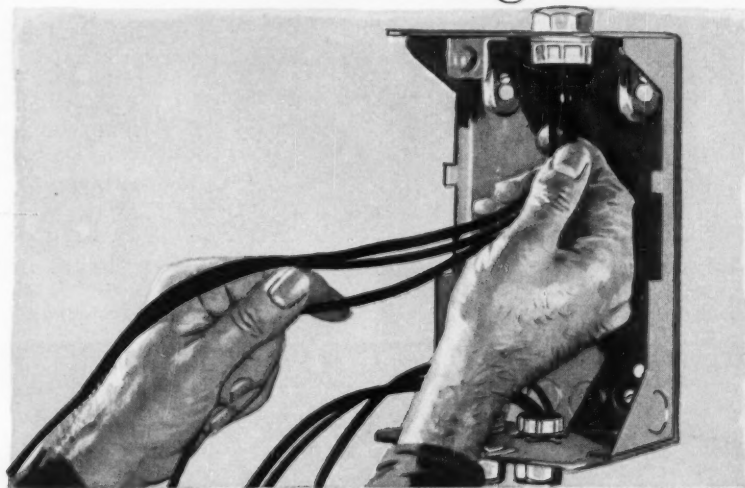
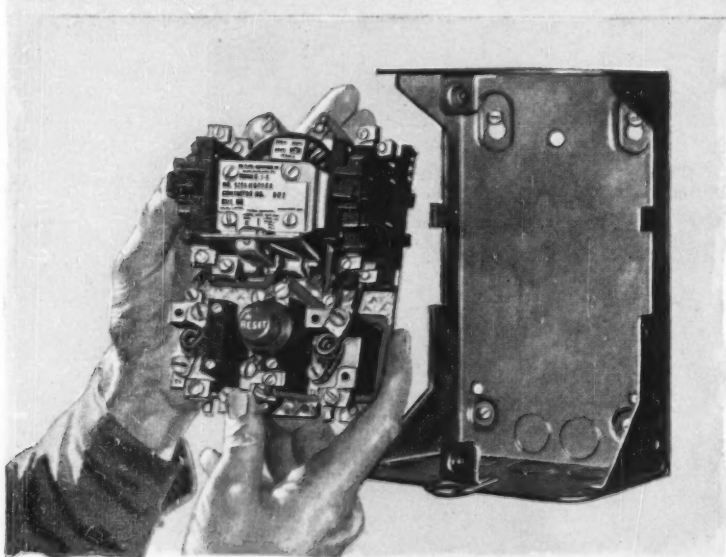
THE THREE CUTLER-HAMMER STARS ★ ★ ★ STAND FOR THREE NEW STANDARDS

★ *installs easier*
 ★ *works better*
 ★ *lasts longer*

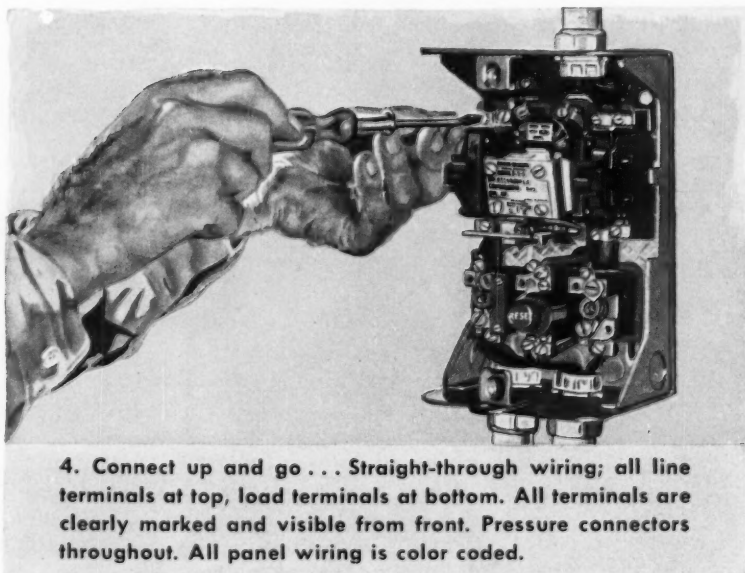
1. Just loosen two screws . . . and off comes wrap-around cover. Screws stay in cover, do not fall into machines or get lost on floor; a typical time-saving design detail.



2. Remove entire starter mechanism . . . by merely loosening three screws. Then light, easy-to-handle skeleton case can be installed. Embossed mounts for good job on uneven surfaces. And upper mounting holes are keyhole slotted.



3. Pull in wires . . . Making conduit connections and pulling wires is a cinch. No starter mechanism or side walls of case in the way. No skinned knuckles or damaged starters.



4. Connect up and go . . . Straight-through wiring; all line terminals at top, load terminals at bottom. All terminals are clearly marked and visible from front. Pressure connectors throughout. All panel wiring is color coded.

Factory records everywhere today show the cost of installing motor control is almost always greater than the cost of the equipment, often two to three times as much. That is why Cutler-Hammer engineering made easier installation a key objective in designing the new Cutler-Hammer ★ ★ ★ Motor Control. When you buy motor control, figure its real cost, its installed cost. Then you too will insist on Cutler-Hammer! Your nearby Cutler-Hammer Authorized Distributor is ready to serve your needs. Order from him today.

CUTLER-HAMMER, Inc., 1436 St. Paul Avenue, Milwaukee 1, Wisconsin.



CUTLER-HAMMER ★ ★ ★ MOTOR CONTROL

The Trend of BUSINESS

January to February. Sales in the latter part of February increased and it was thought that March sales might equal the year-ago mark.

Used car sales again topped the early 1953 level; stocks declined to some extent.

Appliance volume rose noticeably in February and the increased level was sustained in March. Small appliances, such as toasters and mixers, were in heavy demand. Television volume, which had lagged for the past year, spurted.

Furniture sales edged upwards but continued to be under the early 1953 level. However, the recent increase in the turnover of older houses was expected to have a beneficial effect on furniture sales. Three-bedroom houses have now surpassed two-bedroom houses

in popularity.

Apparel volume in February was 8 per cent below a year ago and seasonally below January. The later Easter date, this year, was partially responsible for the lower level of sales as apparel merchants generally expressed satisfaction with the sales level.

Food volume in February was on a par with the preceding year. Grocery stores, particularly supermarkets, reflected moderate increases from early 1953 as most of the stores maintained their aggressive merchandising policy.

Department store sales continued to be above the year-ago mark. The increase in department store sales was a marked reversal of the post-war experience in retail sales. Generally, department store sales have lagged behind total retail sales as

DAILY WHOLESALE PRICE INDEX

The index is prepared on the basis of daily spot closing prices of 30 primary commodities. (1930-1932=100).

Week Ending	Mon.	Tues.	Wed.	Thurs.	Fri.
Mar. 19..	278.62	278.52	278.71	278.65	278.89
Mar. 12..	277.78	277.81	278.16	277.81	278.39
Mar. 5..	275.90	277.20	277.29	277.54	277.64
Feb. 26..	Hol.	275.76	276.29	275.78	276.05
Feb. 19..	275.83	275.81	275.92	275.98	275.55

WHOLESALE FOOD PRICE INDEX

The index is the sum total of the prices per pound of 31 foods in general use. It is not a cost-of-living index.

Latest Weeks	Year Ago	1954
Mar. 16.. \$7.27	Mar. 17.. \$6.42	High Mar. 16.. \$7.27
Mar. 9.. 7.25	Mar. 10.. 6.28	Low Jan. 5.. 6.85
Mar. 2.. 7.21	Mar. 3.. 6.28	1953
Feb. 23.. 7.20	Feb. 24.. 6.21	High Dec. 29.. \$6.81
Feb. 16.. 7.11	Feb. 17.. 6.20	Low Feb. 3.. 6.13

AUTO-LITE BATTERY PROVES INDUSTRY "GROWS PLACES" IN MOA*



Conclusive proof of the opportunity for profitable growth in MOA is shown in the experience of the manufacturers of Auto-Lite Batteries. Establishing a branch plant in 1923, Auto-Lite expanded manufacturing operation from 36,000 units the first year to 400,000 units in 1953, an increase of more than ten times.

The growth factors that are important to Auto-Lite—rich market, central location, year-round ideal climate, savings in shipping time and costs, better market coverage—are important to you. They're outlined in the new, Free FACTFILE, which we will gladly send you, in strict confidence. Write today.

*MOA means Metropolitan Oakland Area (Alameda County, California)

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Oakland
Area
CALIFORNIA

ALAMEDA
ALBANY
BERKELEY
EMERYVILLE
HAYWARD
LIVERMORE
OAKLAND
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the cash your company needs in 1954—to pay taxes or meet payrolls, for plant modernization, to carry larger receivables, etc. . . ? Simple! COMMERCIAL CREDIT's method can provide

from \$25,000

to millions of dollars—without diluting ownership, without mortgaging future profits, without hampering company operation. Some individual companies in this way used during 1953 up

to 5 million

dollars of COMMERCIAL CREDIT's money. COMMERCIAL CREDIT in 1953 advanced more than 600 million dollars for working capital purposes alone. In most cases, cash was forthcoming

within days

of first contact. COMMERCIAL CREDIT's method is efficient and economical. It lets you increase or decrease the amounts of cash used at any time—lets you use it just

for months

or as long as there's need. COMMERCIAL CREDIT funds are available on a continuing basis. The single reasonable charge is a tax deductible expense. To get cash for temporary needs

or for years

write, wire or phone the nearest COMMERCIAL CREDIT CORPORATION office listed here. Say, "Send me information about the plan offered in *Dun's Review and Modern Industry*."

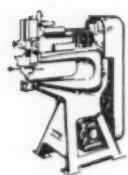
BALTIMORE 1—200 W. Baltimore St. CHICAGO 6—222 W. Adams St.
LOS ANGELES 14—722 S. Spring St. NEW YORK 17—100 E. 42nd St.
SAN FRANCISCO 6—112 Pine St.

A Service Available Through Subsidiaries of

COMMERCIAL CREDIT COMPANY

Capital and Surplus Over \$145,000,000

STOP WASTING TIME, LABOR, MATERIAL and VALUABLE SPACE



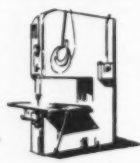
MORE VERSATILE
THAN NIBBLING



SAVE EXPENSIVE
PRESS DIES ON
SMALL RUNS



MORE VERSATILE
THAN ROTARY
SHEARS

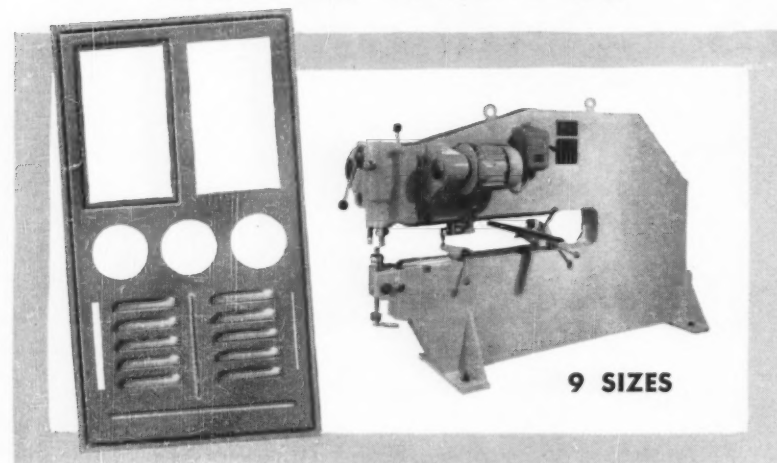


FASTER THAN
BAND SAWING



FASTER AND
CLEANER THAN
FLAME CUTTING

LOOK at what one PULLMAX CAN DO FOR YOU



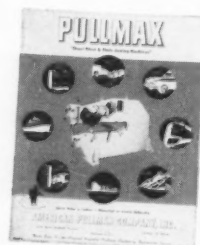
1. Straight cutting
2. Design cutting
3. Inside square cutting
4. Circle cutting* (inside and outside)
5. Beading
6. Folding or Jogging
7. Slot cutting
8. Louver cutting to any length and number

You'll find, just as hundreds of other industries have discovered, that the Pullmax machine can replace thousands of dollars worth of expensive equipment and do all of the work faster and better than the more expensive equipment. *Just imagine cutting a 48" circle of 3/16" stainless steel in 52 seconds! And, what's more, Pullmax leaves an edge that requires little, if any, finishing. Small runs of formed metal shapes can be produced on a Pullmax machine without the use of dies or fixtures. In many installations Pullmax has paid for itself entirely in a matter of a few weeks. Why not let Pullmax reduce your labor costs from dollars to pennies.

Pullmax sales engineers will be glad to call on you and discuss your problems. Our engineering department will be glad to study your blueprints and show you how your production problem can be solved.

Pullmax machines are backed by nationwide service, and stocks of machines and parts.

WRITE FOR THIS CATALOG OF MONEY-SAVING
METAL WORKING IDEAS



AMERICAN PULLMAX COMPANY, INC.
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Compass Points OF BUSINESS

Compass Point	Year	Nov.	Dec.	Year	Jan.	Feb.	
EMPLOYMENT, AGRICULTURAL.....	1951	7.0	6.4	1952	6.1	6.0	
Million persons	1952	6.8	5.7	1953	5.8	5.7	
	1953	6.7	5.4	1954	5.3	5.7	
EMPLOYMENT, NON-AGRICULTURAL...	1951	54.3	54.6	1952	53.7	53.7	
Million persons	1952	55.5	55.8	1953	55.1	55.6	
	1953	55.3	55.3	1954	54.4	54.3	
UNEMPLOYMENT.....	1951	1.8	1.7	1952	2.1	1.8	
Million persons	1952	1.4	1.4	1953	1.9	1.7	
	1953	1.4	1.8	1954	3.1*	3.7*	
FEDERAL RECEIPTS.....	1951	3.5	5.3	1952	5.0	5.6	
Billion dollars	1952	4.2	6.0	1953	5.1	5.5	
	1953	4.7	5.2	1954	4.5	5.0	
FEDERAL EXPENDITURES.....	1951	5.2	5.6	1952	5.5	5.1	
Billion dollars	1952	5.2	7.1	1953	5.7	5.6	
	1953	5.4	6.4	1954	5.1	5.7	
FARM INCOME.....	1951	3.7	3.0	1952	2.6	2.1	
Billion dollars	1952	3.3	3.0	1953	2.8	1.9	
	1953	3.1	3.0	1954	2.7	1.8	
CONSUMER'S CREDIT OUTSTANDING..	1951	20.9	21.5	1952	20.9	20.7	
Billion dollars	1952	24.6	25.8	1953	25.7	25.5	
	1953	28.3	28.9	1954	28.1	27.8	
WEEKLY EARNINGS OF INDUSTRIAL WORKERS	Dollars	1951	65.45	67.16	1952	66.59	66.75
		1952	70.28	72.14	1953	71.34	71.17
		1953	71.02	71.96	1954	70.92	70.71
GROSS HOURLY EARNINGS OF INDUSTRIAL WORKERS	Dollars	1951	1.62	1.63	1952	1.63	1.64
		1952	1.71	1.73	1953	1.74	1.74
		1953	1.79	1.79	1954	1.80	1.79
AVERAGE WEEKLY HOURS OF INDUSTRIAL WORKERS	Hours	1951	40.4	41.2	1952	40.8	40.7
		1952	41.1	41.7	1953	41.0	40.9
		1953	40.0	40.2	1954	39.4	39.5
MANUFACTURERS' SALES.....	Billion dollars	1951	22.3	21.0	1952	22.2	22.4
		1952	23.6	24.5	1953	24.0	24.1
		1953	23.8	23.9	1954	23.7	23.7
WHOLESALESALE'S SALES.....	Billion dollars	1951	9.5	8.8	1952	8.9	8.6
		1952	9.3	9.6	1953	8.5	8.2
		1953	9.3	9.0	1954	8.8	8.4
RETAILERS' SALES.....	Billion dollars	1951	13.4	15.4	1952	11.8	11.7
		1952	14.0	16.9	1953	13.1	12.3
		1953	14.0	16.4	1954	12.4	11.9
ELECTRIC POWER PRODUCTION.....	Billion kw/h	1951	37.3	38.5	1952	39.7	36.8
		1952	39.4	42.3	1953	42.7	39.2
		1953	42.3	44.0	1954	44.1	41.2
BUILDING PERMITS, 120 CITIES.....	Million dollars	1951	237	201	1952	198	243
		1952	272	268	1953	238	272
		1953	301	296	1954	276	264
COMMERCIAL AND INDUSTRIAL FAILURES	Number	1951	587	612	1952	671	619
		1952	590	583	1953	647	691
		1953	815	813	1954	867	926
LIABILITIES OF FAILURES.....	Million dollars	1951	17.6	19.4	1952	26.2	19.5
		1952	18.6	23.4	1953	23.3	27.3
		1953	36.8	43.8	1954	29.6	47.8

* Not Comparable with Previous Figures.

These figures bring up to date some of the series in "The Compass Points of Business," quarterly supplement to the February issue. The next supplement will appear in May.

The Trend of BUSINESS

consumers satisfied their appetite for hard goods. Discount houses have taken an increasing share of hard goods sales and many department stores have reduced their appliance departments.

Retail inventories in January increased to \$21.4 billion. This was 1 per cent above the December mark. A further increase in February was anticipated as merchants increased their stocks for Spring.

Wholesale sales in February were seasonally below the January level of \$8.0 billion and approximately 6 per cent under the similar 1953 mark. Non-durable goods volume reflected a greater decrease from a year ago than did durable goods volume as the late Easter date this year resulted in delayed purchases of apparel and similar merchandise.

Durable goods volume contained to be under the year-ago level although it was somewhat higher than in January. Merchants exercised extreme caution in purchasing as they pursued a policy of rigid inventory control.

Prices Prices in February and early March increased seasonally. The DUN & BRADSTREET Daily Wholesale Commodity Index increased from 275.55 (1947-1949=100) on February 19 to 278.89 on March 19. This was 2 per cent below the preceding year.

Steel scrap prices continued to ease and were 8 per cent below the preceding month and 43 per cent under the July 1953 peak. Lower steel operations and diminished foreign demand exerted pressure; there appeared to be little prospect for a sharp upturn in scrap quotations in the near future. Prices for finished steel continued to be

shaded through freight absorption and other concessions.

In the early part of March, quotations of non-ferrous metals edged upwards. The increase was all the more notable as it occurred during the customary Winter lull. However, much of the increase was a result of speculative activity and prices were expected to revert to their January levels unless there was a marked upturn in production.

Quotations for copper, usually the second ranking industrial metal, rose in February and again increased in early March. A 5 to 6-cent tumble had been forecast; predictions had been based on the large copper stocks and lower scrap prices. However, domestic producers in recent months have reduced production sharply and inventory reduction has been in progress for the past three months. Tin prices increased 2 per cent during the month but continued to be 28 per cent below 1953.

Prices received by farmers dipped one point from January to February and stood at 258 (1910-1914=100). This was 2 per cent under the year-ago mark. The month-to-month decrease was seasonal. The parity ratio dropped one point and stood at 91. The year-ago comparative was 94.

Prices for dairy products eased seasonally. Butter and cheese output continued to top the year-ago mark by a substantial margin. The announcement of the proposed cut from 90 to 75 per cent of parity for the dairy support prices had little effect on output. The cut on April 1 was expected to result in an 8 cent decrease in the retail price of butter. The move to cut support prices was a result of the increase in dairy product stocks. At present, the surplus is equal to 8 per cent of the annual United States milk output.

Livestock prices were generally steady during the month. Lamb prices increased seasonally and were expected to reach a seasonal peak in June. There was some tendency towards higher prices as marketings decreased but external pressures on livestock quotations pre-



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YOUR COMPANY'S
BEST BUY
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Retirement Plan**

DESIGN... First in importance is selection of the proper plan or plans for your Company.

INVESTMENT... Once a plan has been established, nothing is more important than the proper investment of your funds.

We have had many years of experience in the design, administration, and investment of all types of employee benefit plans.

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Established 1812

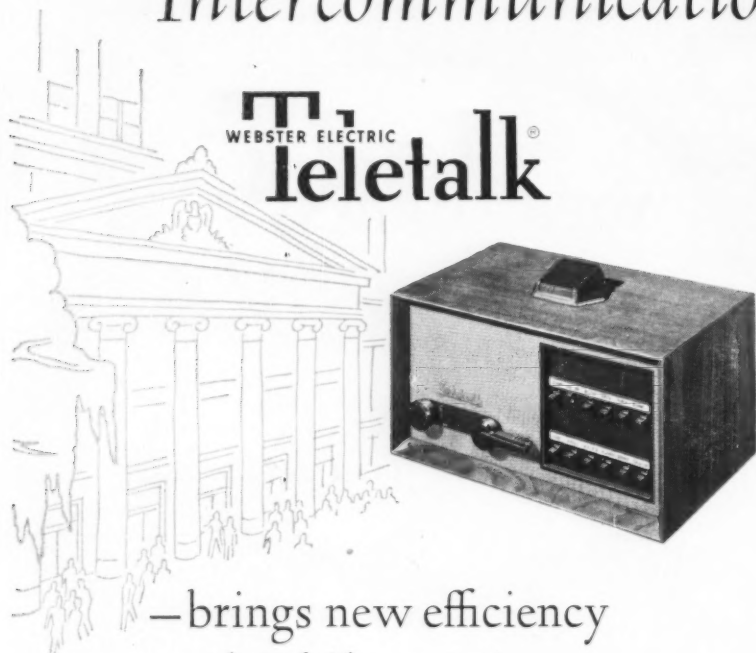
BANK CLEARINGS (Thousands of Dollars)

	1954	February	1953	% Change
Total 24 Cities.....	32,474,981	32,108,096		1.1
New York.....	40,865,665	33,899,202		20.6
Total 25 Cities.....	73,340,646	66,007,298		11.0

NEW BUSINESS INCORPORATIONS

Geographical Divisions	January	February	Twelve Months	1953
New England.....	595	607	7,041	6,130
Middle Atlantic.....	3,319	3,226	32,842	31,655
East North Central.....	1,761	1,581	17,417	14,760
West North Central.....	481	468	5,080	4,299
South Atlantic.....	1,355	1,420	15,435	13,562
East South Central.....	260	229	2,990	2,714
West South Central.....	447	601	6,140	5,964
Mountain.....	399	322	4,095	3,591
Pacific Coast.....	926	1,014	11,505	10,054
Total U.S.....	9,543	9,468	102,545	92,819

America's Finest Intercommunication



—brings new efficiency to bank's* operation

*Name and interesting details on request

As an important part of its recent modernization program, a large Southern bank installed a complete system of Teletalk intercommunication. Now, Teletalk units at strategic locations put key personnel within instant voice-to-voice reach of each other. Officers get confidential information quickly from various departments over handset Teletalk units.

Increased operating efficiency and substantial time savings have resulted from installing Teletalk —America's Finest Intercommunication in point of style, performance and lasting value.

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Teletalk comes in a wide variety of models to serve a broad range of needs—including yours, whether your business is large or small. Let your local dealer (see classified Yellow Pages) suggest the most economical Teletalk "hookup." Write us for free copy of booklet "Costs Drop."

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RACINE WISCONSIN

"Where Quality is a Responsibility and Fair Dealing an Obligation"
WEBSTER ELECTRIC COMPANY, RACINE, WISCONSIN - EST. 1909



The Trend of BUSINESS

vented any perceptible increase.

Grain prices edged upwards as wheat quotations rose 4 per cent and were only 1 per cent below the year-ago mark. Corn prices in March were 1 per cent above the February level and 1 per cent under the 1953 comparative. Oat, rye, and barley quotations dipped slightly from the preceding month and were slightly below a year ago.

Prices for most textiles and raw fibers rose slightly from February to March but continued to be somewhat below the year-ago mark.

Raw cotton prices rose 1 per cent from February to March and were 3 per cent higher than at this time last year. Quotations for the bellwether 80 square print cloths were steady throughout February while sheeting prices eased slightly.

Wool prices dipped somewhat in the early part of March as trading continued to be extremely light. Inventory paring in synthetic fabrics was rather common.

Finance Trading on the New York Stock Exchange was extremely active throughout February and stock averages reached their highest level since 1929. From 291.07 on February 19, the Dow-Jones average of 30 industrial stocks climbed to 301.44 on March 19. There appeared to be little likelihood of any violent fluctuations in stock averages in the immediate future. Turnover of stocks amounted to over 33 million shares. This rate of turnover in February was only surpassed by 1951 and 1946 in the post-war period.

Corporate annual reports renewed confidence in stock prices and the initial dividend reports for 1954 appeared to reflect a strong business position for most corporations. According to the Department of Commerce, cash dividend payments in January amounted to \$690 million, 26 per cent above the 1953 comparative.

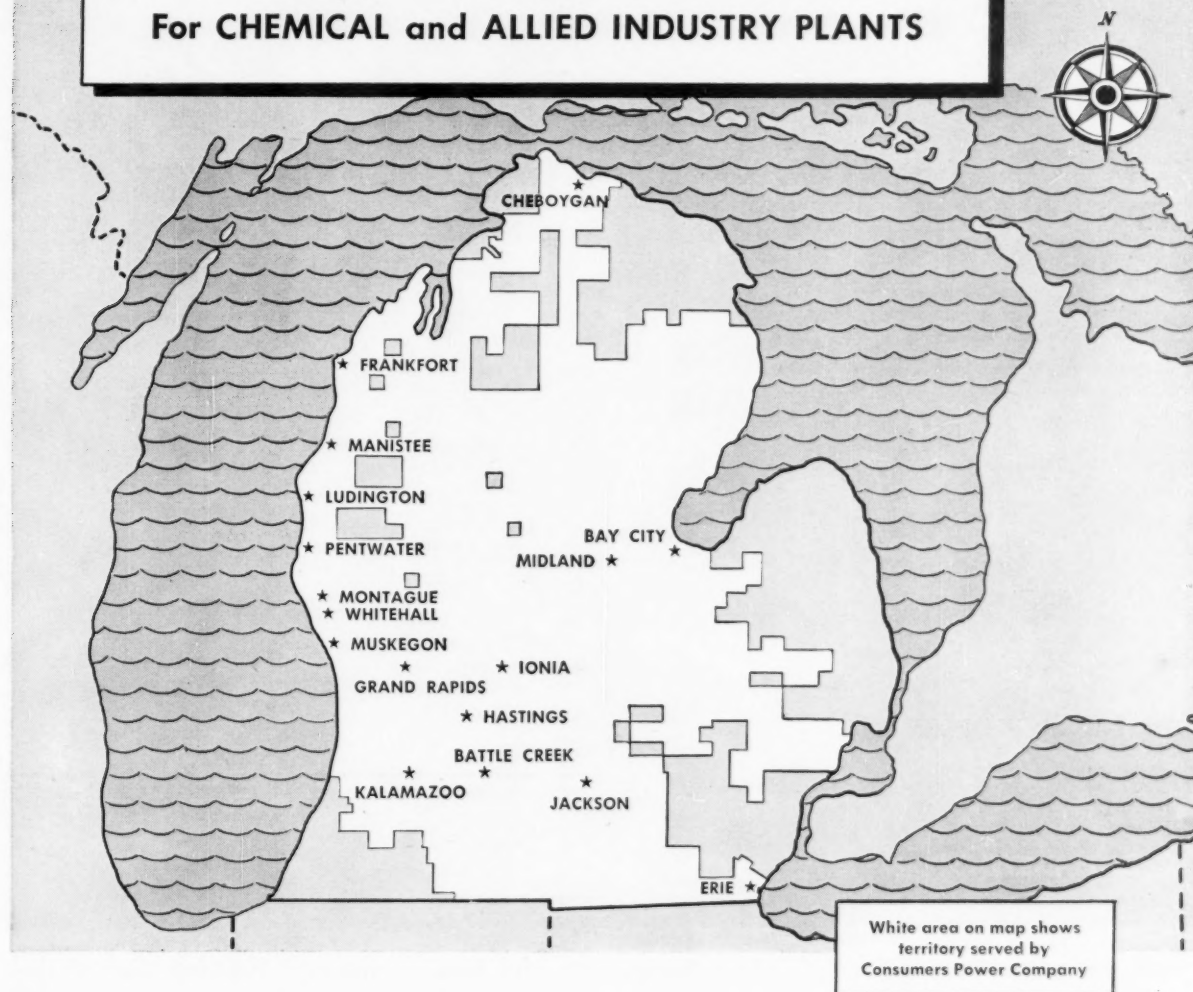
MARSH & McLENNAN INCORPORATED

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St. Paul Duluth Portland Buffalo Atlanta Calgary Washington
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The Site of Sites
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It takes a specific location with proper facilities TO FIT YOUR NEEDS. Write us YOUR REQUIREMENTS.



One of the world's great chemical companies developed from a single brine well at Midland, Michigan. Another outstanding chemical company, attracted by Outstate Michigan's vast underground salt beds and the availability of water transportation, is completing a large plant at Montague, Michigan. Other prosperous chemical companies are to be found in many Michigan communities.

There are plenty of good sites left, some of them (but by no means all) in the cities indicated on the map. And remember, Michigan has the greatest fresh water supply in the world — water for industry, water for transportation, water for recreation — plus an ideal location in the very heart of America.

FOR INFORMATION CONTACT
 INDUSTRIAL DEVELOPMENT DEPT.

CONSUMERS POWER COMPANY
 JACKSON, MICHIGAN



Every day some 11,000 travelers arrive in New York by air. When their plane wings in over lower Manhattan, this dramatic, bird's-eye view of the city's financial center is spread out before them.

Here is the head office of the Chase National Bank where scores of businessmen and bankers from out of town are welcomed every day.

At Chase these visitors find officials who are familiar with

trade developments and business methods in foreign markets as well as in all parts of the United States. They also find in New York a network of Chase branches whose staffs are in touch with the diverse business interests and enterprises of the city.

Chase stands first in loans to American industry, and for many years has also been number one in correspondent bank relationships. Almost half of the banks in the country which

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Tachographs provide a charted, permanent record that aids in the efficient handling of valuable payloads and protects your costly rolling stock. Over-the-road vehicles that are equipped with Tachographs have fewer accidents... spend less time in the repair shops... save gas and tires... and earn lower insurance rates. Coupon below will bring complete information.

Drivers call them their Buddies

They protect drivers from false accusations and tell the dispatcher how vehicle is handled on every trip.



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Please send me free bulletin SU-3

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

We operate (number) _____ vehicles 254-9

BUY

Continued from page 52

store" is the sixth reason customers give for buying in these markets. But this reason is fifth in the case of furniture and sixth in the instance of women's wear.

"Better parking space" represents another reason for buying in these markets. In the case of the all-products group, it has a rating of 6.3 per cent. In the instance of the furniture classification it has a rating of 4.3 per cent and just 3 per cent in the case of women's wear. "Friendships in stores" stand up the scale at 5.6 per cent in the instance of the all-types category, at 4.5 per cent in the case of furniture, and at 2.8 per cent in the instance of the women's wear classification. "Better services" ranks at 2.4 per cent for the all-products group, at 5.8 per cent for furniture, and at 2.1 per cent for women's wear. "Other reasons" fall comparatively low on the scale.

From the results of this survey, significant conclusions might now be drawn. In the first place, the proportion of goods being bought in each of the four markets is so relatively large, with the exception of the neighborhood market, that it reflects a state of keen competition between these markets. Thus a severe battle for retail markets is going on. This battle affects manufacturers, wholesalers, and retailers, although retailers more than the other two. The manufacturers' and wholesalers' salesmen must now cover more markets than formerly when fewer goods were sold in the secondary markets. The advertising of the manufacturer and wholesaler must now be spread wider. Unless offset by other factors, marketing costs, therefore, are greater than formerly for the manufacturer and wholesaler, while the volume of trade per retailer is less than formerly and his costs are mounting accordingly.

Now what should the retailers individually do about it? Since location, as expressed in terms of convenience to customer, is so vitally important, some retailers should relocate their stores. That is exactly what some wide-awake merchants are doing. In the last 40 years one grocer moved his store three times, so also did a druggist. And three department stores moved twice.

LOOK TO DETREX FOR



If you're satisfied with
any other paint base
You ~~don't~~ have the facts about

Paintbond

HOW PAINTBOND EXCELS:

By improved paint base: Paintbond provides greater permanence to your paint finishes than any comparable phosphate coating process... you can prove this with your own salt-spray tests! Even when paint is scratched through, corrosion is confined to the exposed metal; spreading corrosion, and resulting paint flaking and peeling, is prohibited!

Further, since Paintbond consists of much finer-grained crystalline structure, it imparts a smoother, more lustrous finish to your products. At the same time, paint is securely interlocked with the metal for extreme durability.

By dollar savings: It is an easily proven fact that Detrex Paintbond will coat a substantially greater surface area per drum of compound, or will provide a heavier coating with the same amount of compound. This means important dollar savings for you. Since Paintbond goes further and is easier to control in solution, you enjoy maintenance savings, too.

By flexibility: Whether applied by spray or immersion, Paintbond can easily be controlled to give exactly the coating weight and crystal size you desire. This important advantage spells satisfaction on every type of product and application.

By added merchandising value: Detrex makes available to Paintbond users an attractively designed sticker for application on their finished products. At point of sale, this sticker becomes another sales clincher for your product as it informs the customer of the life-time, rust-free paint finish that Paintbond provides.

Paintbond IS different... the benefits above are but a few reasons why. Like all Detrex processes, results are fully guaranteed. You can get *all* the facts by using the coupon below... do it today for better paint finishes at lower cost tomorrow.

Please send us complete facts about Paintbond and how it will improve our finishes while cutting our costs.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____



DETREX

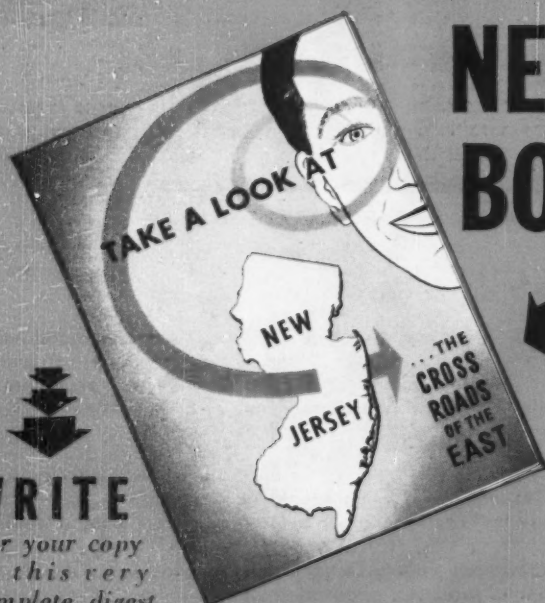
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DEPT. PB-104, BOX 501, DETROIT 32, MICH.



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WHY so many Industries
come to the Crossroads
of the East...YOU must**

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THIS
NEW
BOOK**



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report about New
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Company, 73 Park
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PUBLIC SERVICE
... AT THE CROSSROADS OF THE EAST

The department stores in many of the large cities are solving the location problem in still another way. They are opening up branches in the secondary markets. Likewise, better parking facilities are being opened up by off-street parking and meters and are, therefore, making stores in the central trading district more convenient.

Inasmuch as "better assorted goods" and "better quality merchandise" are so relatively significant in drawing trade, more retailers should devise better methods to keep more wanted merchandise. Many of the most progressive merchants are solving this problem through price-lining and size-lining, as well as through the model stock buying plan. Many more retailers in all four markets could help themselves decidedly by adopting these devices, could definitely improve their competitive positions. Price-lining would also help solve the price problem which more and more merchants are facing as the sellers' market recedes farther and farther.

In view of the comparative importance of effective salesmanship in drawing trade, and in view of

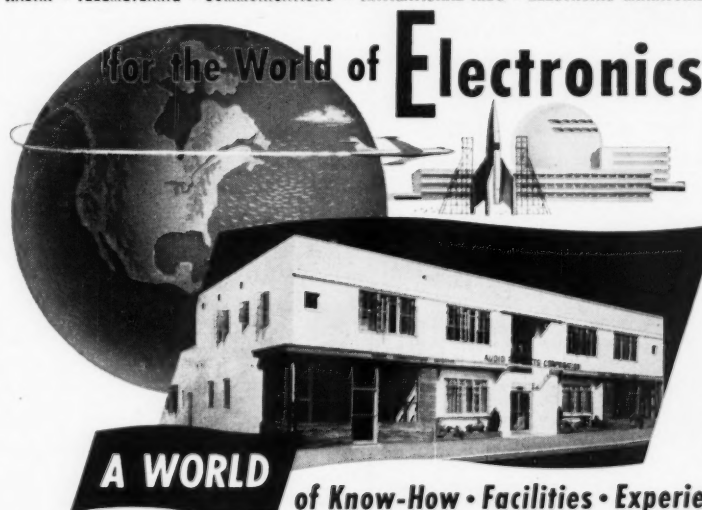
the general weaknesses of salesmen by and large (as determined by other investigations), most retailers in each of the four markets could obviously improve their competitive positions by training their salespeople. To illustrate what salesmanship training has done in some cases, let us take a few examples:

The retailers in one city in Oregon had their salespeople trained and retrained. The result? The out-of-town trade was cut in half. One large store trained and retrained its salespeople. The result? Shoppers of other stores rated them as the best salespeople in the city. In many other stores, sales have mounted from 5 to 25 per cent after their salespeople were trained and retrained.

Finally, other merchants in each of the four markets could improve their competitive positions, could increase their profits, by changing their policies to insure a greater dependability and a higher grade of services. Training the non-selling employees in courtesy, helpfulness, and dependability could also result in greater profits.

THE END

RADAR • TELEMETERING • COMMUNICATIONS • NAVIGATIONAL AIDS • ELECTRONIC MINIATURIZATION

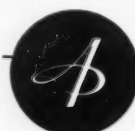


Audio Products Corporation accomplishments in the field of Electronics stem from more than 35,000 square feet of modern production facilities and a staff of engineers accustomed to working in the more advanced phases of electronic development. From basic design to prototype, to final engineering

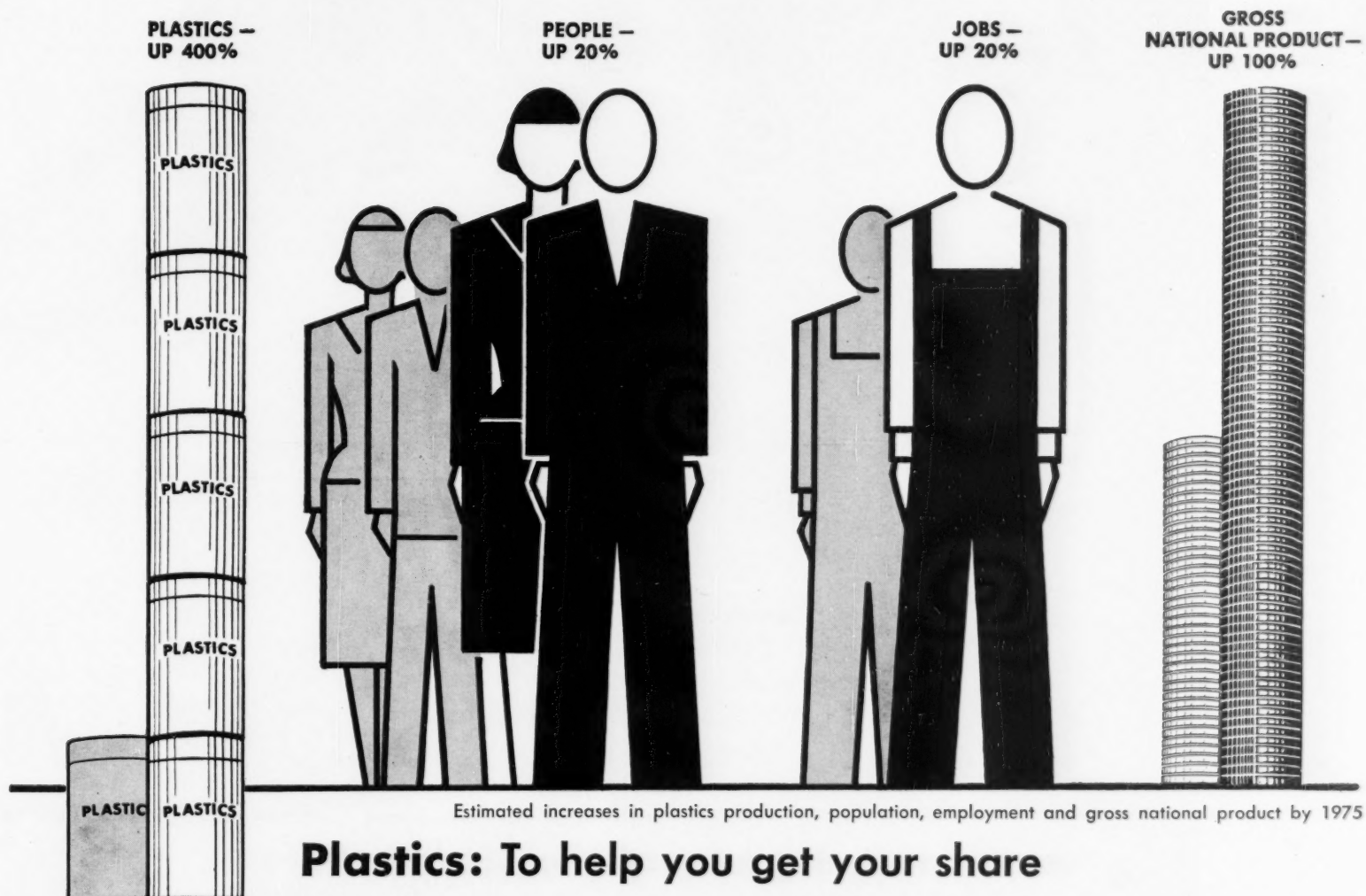
tests, KNOWLEDGE, EXPERIENCE and FACILITIES are applied to deliver a finished product to meet the highest standards of performance and reliability. A host of successful electronic units for military agencies and commercial organizations the world over is the result.

AUDIO PRODUCTS CORPORATION

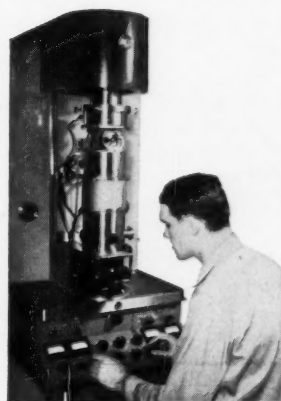
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IN THE NEXT TWO DECADES...



Plastics: To help you get your share of bigger consumer markets



Electron microscope, used to study structural characteristics of plastics in Monsanto's research laboratories, magnifies 20,000 times, clarifies particles as small as .00000004 of an inch.



SERVING INDUSTRY... WHICH SERVES MANKIND

Key to tomorrow's sales . . . product development today: Twenty years of growth and development will put a new face on America in 1975. More consumers, *new* consumers, and new consumer wants and needs forecast a confident future for the alert, aggressive manufacturer who begins planning *now* for tomorrow's business.

In tune, there's a new research approach at Monsanto. Coordinating market information with materials studies, the service and development program will seek out an ever-broader range of *functional* uses for plastics. Results: For you, a wider choice of stronger, lighter materials, and hence the lower fabricating costs and faster, more automatic production possible with plastics. For consumers: More plastic products with new beauty, new utility, new durability.

You'll want to investigate how many leading manufacturers are *already* using Monsanto plastics to simplify production and cut costs while actually improving their products. And for a free copy of Monsanto's report on "Application Research — For Bigger Consumer Markets," just use the handy coupon.

MONSANTO CHEMICAL COMPANY, Plastics Division, Room 1404, Springfield 2, Mass.

☐ Please send me your report, "Application Research — For Bigger Consumer Markets."

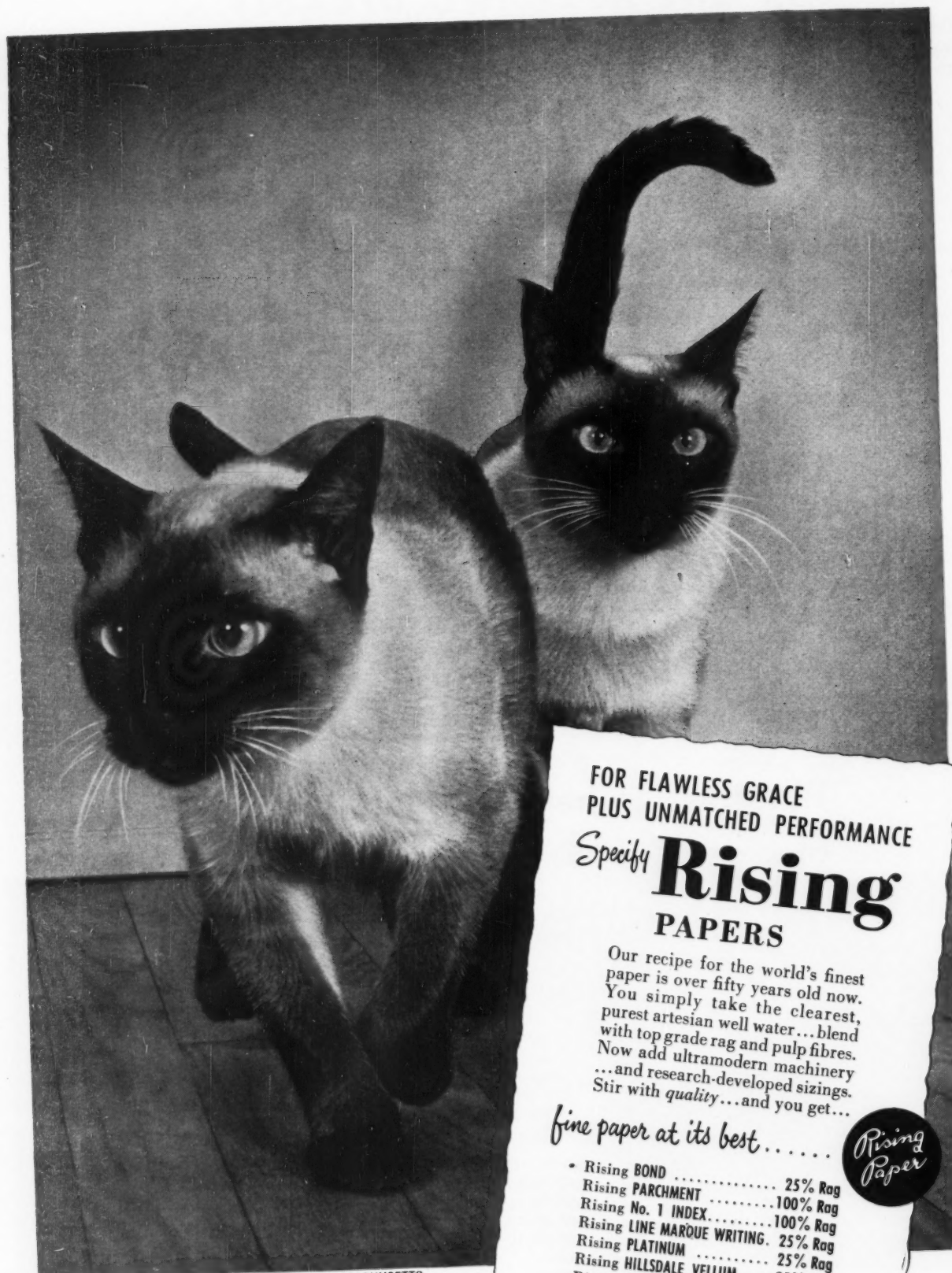
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Company _____

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EMPLOYER RELATIONS

"Shaking Hands" With New Employees

Modern industrial employees, often working on a single small part of a complex product, lose their sense of identity with the enterprise and suffer in morale because their operation seems so remote from the company's total purpose. Office workers, dealing with paper records, can feel even farther removed from the heart of the enterprise.

At The Firestone Tire & Rubber Company in Akron, Ohio, the endeavor to integrate the employees with the whole operation begins early—it begins the day they come to work. More than 2,000 employees, in groups of five to 40, twice to five times a week, have gone through the orientation program the company calls "Shaking Hands With Firestone."

Office employees (below) are inducted in separate groups. Aside from the usual instruction in company rules and benefit programs, the new office people are told the company's history, shown through the Research Laboratory, shown tires in the making, and given a customer's-eye view of Firestone in the model store, also used for sales training.



Memorial to founder, Harvey S. Firestone, is a stopping point in newly inducted office employees' tour of Firestone Tire & Rubber Company.



Reports they will work on as clerks, typists, bookkeepers, or file clerks will mean more as result of induction-tour visit to model retail store.



Following luncheon in Firestone Clubhouse, new office employees see the film, *Building a Tire*, then visit the plant and see the real thing being done.



In same conference room where day's introduction began, newcomers close day with talk by Personnel Director J. S. Heuss on opportunities.

Separate publication for economic news?

DOES the company information in your employee paper get lost in the sports and social news? You might take a tip from Hotpoint Company, Chicago, which has taken steps to separate the two kinds of news, and may be pointing up an important new trend.

Rather than attempt to pack plant economic news and business information in among the news of employee activities, personal items, and general news in its standard employee paper, Hotpoint has established a new, one-purpose, newsletter for the more serious material.

Reception has been excellent, according to Thomas E. Wood, manager of Employee Information, who is seeing the *Hotpoint Employee Business Bulletin*, through its third issue.

The *Business Bulletin* took over the communication of economic information from the regular *Hotpoint News* with the start of the year. Set in typewriter type, it has four pages, without attempt at heads or make-up, and looks somewhat like a Washington newsletter.

A typical issue gives a terse report on sales outlook ("competition will be most rugged," but "the Marketing Department still looks to 1954 as a good year and one in which we can take over a larger per cent of the business").

Other subjects: need for quality performance in 1954, production schedules ("they have leveled off"), waste prevention, comparison of Hotpoint wages, and a forecast of best food buys for employees in the coming month.

"We have turned to this medium of informing our employees about the company as a supplement to our *Hotpoint News* which frequently has a minimum of business information in it," says Wood. "We feel that too often the articles of importance which would normally be in a house organ do not get full readership. This way we can be more specific in our business bulletin about the matters which we feel need extra attention."

A similar four-page letter, more chatty in tone and signed by the president, was inaugurated by Arvin Industries, Inc., Chicago, last Fall. It goes to some 400 supervisory people, about 4 per cent of the payroll; this company's *Inside Arvin* is a monthly publication. The company's explanation:

"When a small top management group freezes tight to pertinent information, trends, plans, salaried employees farther along the chain



Let us show you a site where the atmosphere's right!

You select a plant site with two objectives in mind—profitable production and continuing growth. *You* know it pays to steer the course which offers the smoothest sailing. B&O's Industrial Development men will help you chart such a course—in confidence, and without obligation.

In the 13-state B&O territory resources are tremendous, power plentiful, rail transportation fast and dependable. Your specific needs studied in the light of these and other factors by men skilled in plant location can uncover a site exactly right for you.

Join the "fleet" of industrial enterprises we have successfully piloted to good sites. *Ask our man!*

Telephone our plant-location men' at:

New York 4	Dlgby	4-1600
Baltimore 1	LExington	9-0400
Pittsburgh 22	COurt	1-6220
Cincinnati 2	DUnbar	2900
Chicago 7	WABash	2-2211



Baltimore & Ohio Railroad

Constantly doing things—better!

of command frequently feel left out of things.

"That's happened in many a company, but it's not likely to happen at Arvin, because extensive steps have been taken to head it off. Always a firm believer in sharing the knowledge with every employee who might do a more intelligent job because of improved perspective, Arvin officials have for many years encouraged free interplay of facts and ideas among executives in the fourteen plants at the five central Indiana towns where Arvin operates.

"Now the company has adopted the newsletter technique and tailored it to its own requirements to keep production, engineering, sales, and other supervisory staffmen abreast of what's going on and what could be going on at a later date."

Inside Arvin in a typical issue discusses absenteeism (it costs the average company \$56.02 per employee per year), color trends in table radios, quality, price, prospects.

Fringe costs up for smaller companies

The cost of "fringe" employee benefits have increased nearly 25

per cent in the last two years, a survey of the employers of a substantial portion of Cleveland's factory workers shows.

For companies with 100 or fewer employees, the rise has been a huge 48 per cent; for those with more than 1,000 on the payroll, only slightly over 4 per cent.

The figures come from a survey of 160 Cleveland companies employing 74,647 hourly-paid workers, or a little more than 30 per cent of this community's hourly manufacturing labor force.

Conducted by The Associated Industries of Cleveland, the survey compares 1951 costs of fringe benefits, on an hourly basis, with those prevailing at the end of 1953. The results are summarized in the association's newsletter, *For the Informed Executive*.

For the reporting companies as a whole, fringe-benefit costs rose from \$0.2477 per man hour in 1951 to \$0.3083 in 1953. Among companies with fewer than 100 employees, the increase was from \$0.2181 per man hour in 1951 to \$0.3220 last year. For the over-1,000 companies, it was a more modest jump from \$0.2936 per man hour in 1951 to \$0.3054 in 1953.

The greater impact on small con-



New college-business tie-in plan

Comptroller and two other employees of Lightolier, lamp manufacturing concern, take eyes off the instructor for a moment in one of the classes they are sampling at New York's New School for Social Research, under a new "Business Scholarship" plan. A firm contributes \$1,000 to the New School, receives in return 48 cards

entitling employees to attend classes that require one, two, three, or four cards per semester, depending on credit given. Courses range from economics to psychology, taxation to history and the arts. Typical of instructors is one above, Dr. Alfred J. Marrow, president of Harwood Manufacturing Company.

A Year of Progress!

The steady progress that has characterized the history of the Radio Corporation of America continued in 1953 as the volume of business increased for the seventh successive year, reaching an all-time high of \$853,054,000.

Progress in development of color television, approval by the Federal Communications Commission of signal standards on which the RCA compatible color television system is designed to operate, set the stage for 1954 as the "Introductory Year" of color television.

Significant advances on several fronts were made by RCA in 1953:

1. Magnetic tape recording of television programs in both color and black-and-white, ushering in a new era of "electronic photography."

2. A new method, which, for the first time in history makes it possible to convert atomic energy directly into small but usable quantities of electrical energy with sufficiently high current multiplication to operate electronic apparatus. Based on this method, an experimental RCA Atomic Battery powered by a minute quantity of a long-life radioactive isotope was demonstrated.

3. Continued development and application of transistors revealed that electronics of solids holds tremendous possibilities for new advances in radio and television sets as well as in other electronic equipment.

Foreseeing new opportunities in all phases of its activities, RCA has intensified research, strengthened and expanded its organization, increased manufacturing capacity and diversified its products. Our objective is to maintain the leadership of RCA in radio, television and electronics, to serve America and its people through production of the finest instruments and by rendering the most efficient and economical services. Our watchword is *quality* and our aim is to maintain the symbol "RCA" as a hallmark of dependability, superior performance and progress.

David Sarnoff

Chairman of the Board

Frank M. Folsom
President

Results at a Glance

from RCA 1953 Annual Report

	1953	1952
PRODUCTS AND SERVICES SOLD	\$853,054,000	\$693,941,000
Per cent increase over previous year	22.9%	15.9%
PROFIT BEFORE FEDERAL TAXES ON INCOME	72,437,000	67,362,000
Per cent to products and services sold	8.5%	9.7%
Per common share	4.94	4.62
TOTAL FEDERAL TAXES ON INCOME	37,415,000	35,037,000
Per cent to profit before Federal taxes on income	51.7%	52.0%
Per common share	2.67	2.52
NET PROFIT	35,022,000	32,325,000
Per cent to products and services sold	4.1%	4.7%
Per common share	2.27	2.10
PREFERRED DIVIDENDS DECLARED FOR YEAR	3,153,000	3,153,000
Per share	3.50	3.50
COMMON DIVIDENDS DECLARED FOR YEAR	16,810,000	13,858,000
Per share	1.20	1.00
TOTAL DIVIDENDS DECLARED FOR YEAR	19,963,000	17,011,000
REINVESTED EARNINGS AT DECEMBER 31	164,068,000	153,299,000
STOCKHOLDERS' EQUITY AT YEAR END	215,719,000	202,287,000
WORKING CAPITAL AT YEAR END	228,941,000	205,288,000
Ratio of current assets to current liabilities	2.9 to 1	3.0 to 1
ADDITIONS TO PLANT AND EQUIPMENT	33,644,000	26,561,000
DEPRECIATION OF PLANT AND EQUIPMENT	13,999,000	11,128,000
NET PLANT AND EQUIPMENT AT YEAR END	134,182,000	115,444,000
NUMBER OF EMPLOYEES AT CLOSE OF YEAR	65,000	64,000

A copy of RCA Annual Report for 1953 will be sent upon request. Write Radio Corporation of America, 30 Rockefeller Plaza, N. Y. 20.

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World leader in radio — first in television



Shipper Hits Savings Jackpot with new Unitizing Method!

A Signode unitizing method that can work for you!

Shipping textile machine parts always was costly for one manufacturer until he called in a Signode fieldman. A new strapped Unit-Pack was designed and tested—and the manufacturer soon realized that he had hit the jackpot in savings! He saved

74.2% in labor	74.0% in overhead
57.7% in materials	55.2% in container cost
	26.0% in freight

Here's the story: The manufacturer was shipping two cylinders for spinning or twisting frames in a heavy wooden crate. Becoming conscious of shipping costs, he sought a way to reduce this expense. The Signode fieldman offered the solution—a double carton secured with tensional steel strapping.

Unitizing your shipments with steel strapping may turn expense into profits—damaged goods to safely delivered goods. It costs you nothing to find out what can be done. Send for our folder showing 6 BASIC WAYS OF UNITIZING!



2665 N. Western Ave., Chicago 47, Ill.
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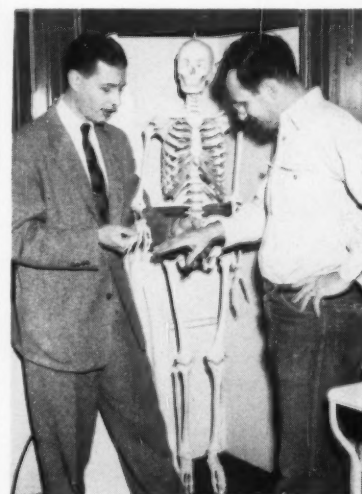
cerns probably is a direct reflection of the lag in pressing of union demands upon smaller employers after they have been pioneered in the bigger, pattern-setting corporations. Some smaller plants only now are facing pension demands.

New handbook gives how of job stabilization

Aptly timed because union demands for a guaranteed wage have redoubled interest in evening out employment, a new manual of the non-profit research organization, Industrial Relations Counselors, Inc., gives a practical guide to how to tackle the problem.

It is *Steadier Jobs: A Handbook for Management on Stabilizing Employment*. Descending from the generalities that characterize many discussions of stabilization, the book gets down to cases on how, in a given organization, to "organize the attack," assign management responsibility; obtain, measure, and analyze the facts; stabilize sales by varied techniques, improve sales forecasting and production planning; gear in suppliers, customers, and the community; and adapt personnel policy to job stability.

Made possible through a grant from the Alfred P. Sloan Foundation, the research on which the book is based was launched before the



Teacher's helper

Slip a disc, crack a rib, or break a finger and Dr. Harvey L. Lehman will show you exactly what happened, with the aid of this plastic skeleton—if you're an employee of Armstrong Cork Company's Lancaster, Pa., Floor Plant. The model, says the plant physician, helps employees grasp the nature of the injury faster, equips them better to care for injuries after treatment.

newest union drive for wage guarantees. The book contains case illustrations, charts, exhibits, and tables. It costs \$2.25 from Industrial Relations Counselors, Inc., 1270 Avenue of the Americas, New York 20, N. Y.

Coffee drinkers get a break on coffee break

Although the price of coffee continued to zoom in the first quarter of the year, many office and industrial workers were still getting their coffee-break coffee at old prices, Bert Mills Corporation, coffee vendor manufacturing concern, reports.

About half the "Coffee Bars" manufactured by the company and now in use still give a cup for a nickel. Thirty per cent have raised prices to 6, 7, or 8 cents a cup. Only 10 per cent charge as much as a dime—the lowest price in most outside restaurants.

Mills estimates 54.2 per cent of employed workers now enjoy a coffee break, as mechanized vending reduces the time required for the custom.



Plug-in, like a toaster

With the aid of a fleet of twelve mobile, plug-in cafeteria trains, 6,000 employees of Douglas Aircraft Company, Inc., El Segundo, Cal., can eat in a single, 30-minute lunch period. Formerly they had three staggered lunch periods. Each train has three carts, carries food from central kitchen to a different kitchenless dining room. Driver swivels in seat, after plugging in, operates cash register. Use of disposable metal dishes and plastic cutlery eliminates dishwashing.

cleanliness is important



**SPECIFY BISHOP
STAINLESS STEEL TUBING**

The raccoon (*Procyon lotor*), native to North America, is named from the Indian word *arah-kunem* (Algonquian for "he scratches with the hands"). When near water he washes his food before eating. For fun give him sugar. He will wash it, and when he sees it has disappeared, will return for more. But he's smart . . . after several times he'll realize this food can't be washed.

When cleanliness is imperative, specify Bishop because you can rely on Bishop's carefully crafted, cleaner small diameter stainless steel tubing (.008"—1" O.D.).

Bishop takes special care to control the cleanliness of its tubing from starting stock to finished tubing. This is accomplished by inspection methods combining visual and mechanical means. You expect high quality of any stainless steel tubing, you get the added value of clean, bright, smooth finish when you specify Bishop.

J. BISHOP & CO. • Platinum Works
STAINLESS STEEL PRODUCTS DIVISION, MALVERN, PA.

If you use stainless steel fabricated tubular parts, investigate Bishop's cost-reducing "under-one-roof" drawing and fabricating facilities.

A GOOD SPEECH

Continued from page 64

speaker who is paid for his work, still remembers the sound he made flopping as he tried to cut and reorganize a 40-minute talk to fit 20 minutes.

A well-organized address is made up of elements. Always know exactly what yours are, and how many you have. Then, if you must cut, eliminate whole elements (not a piece from each), starting with the least important one first. This permits you to stick to your script; keeps you from losing your place; from getting nervous and repeating yourself.

Notes: Your delivery may never be perfect, but the audience will still grasp and follow your ideas, if you stick to a properly planned script.

"Abiding by the plan," says Dale Armstrong of Executive Research, Inc., "seems to be one of the hardest things for business men to do when they occupy a speaker's chair. Yet without the plan, they can't do the three things required of them: get started; build up to a climax; and then *quit*."

Preparing notes takes time, especially if done according to the prescription of Armstrong and other experts. Write out the speech in full, they advise, and then make notes from it. This takes longer, but your message will be better organized. (A mother writing a ten-page letter to her daughter summed the situation up, when she concluded, "I'm sorry to have written such a long letter; if I'd had more time, I would have written one page.")

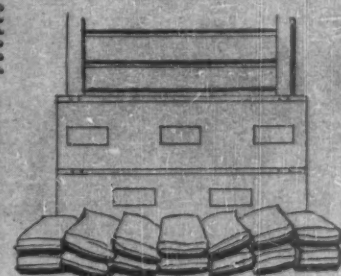
Notes keep you from fumbling for words (which induces stage fright); and from rambling. Use them obviously, unselfconsciously, and on paper large enough to hold easily read type. Finely scrawled data require too much concentration of you; create tension.

Referring to your notes surreptitiously won't fool the audience a bit. A business man was practicing a speech before one of his friends. By the time he finished, the friend felt that he had notes up his sleeve, under the ash tray, and in the palm of his hand.

"Well, what's the verdict?" asked the would-be speaker. "Terrible," was the answer. "Why are you

Source of Profits in 1954...

**... End of damage at car
doorways...with Signode
Retaining Strips!**

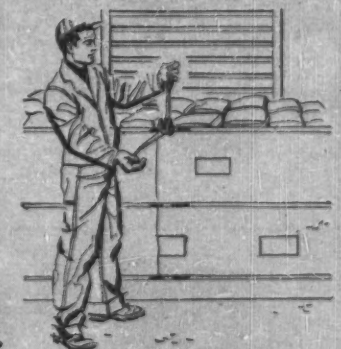


Bagged product in process of loading.

Take profits instead of losses this year by stopping car doorway damage with **Signode Retaining Strips**. It is being done now by more than 1500 shippers of bagged and cartoned commodities such as flour, canned goods, sugar, feed, chemicals, salt, and drugs!

Signode Retaining Strips permit through-car loading . . . save time of cooping crews . . . permit solid doorway loading . . . speed unloading . . . lower damage claims . . . build good will.

Whether you ship a few cars or many in 1954, it will pay you to find out about car doorway protection as a source of profits. Send for **RETAINING STRIP FOLDER**.



Workman tensions Duplex retaining strips outside car doorway after doorway is solidly loaded.



SIGNODE

STEEL STRAPPING CO.
2665 N. Western Ave.
Chicago 47, Ill.

In Canada: Canadian Steel Strapping Co., Ltd.

"A Basic Saving of \$35,000 a year" with TelAutograph™ *Instant-Form*™

The following unsolicited, complete story in Raytheon News, house organ of Raytheon Manufacturing Co., tells the value of TelAutograph Teletypers to the Company's TV and Radio Division in Chicago. Handwritten communications sent instantly by the TelAutograph Teletypewriter System will also mean substantial economies to your company!

Raytheon News



Raytheon TV and Radio Division officials watch Clara Holecek operate the transceiver in the Incoming Inspection Department.

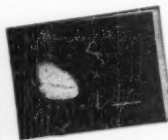
TV Receiving Department Speeds Work of 5 Groups with New TelAutograph

The TV division in Chicago has a magic wand that makes work easier for its Dickens Avenue Receiving Department. A time and dollar saver, the TelAutograph automatically records in one operation incoming material reports on six receiving units located in various parts of the plant.

As soon as merchandise is delivered to the loading platform, the verified packing lists are handed to an operator who immediately scribes a receiving ticket on the Transceiver. This ticket, giving all shipping information, is duplicated on the receiving units in five departments: Accounts Payable, Expediting, Incoming Inspection, Central Files, and Planning and Scheduling.

With one flick of the wrist and at almost the same time, these department checks go into action. Inspection checks for priority material and moves it at once. Expediting notifies the department that its material has arrived. Central Files microfilms the form, saving almost two hours over the old method. Accounts Payable has an immediate record for its bookkeepers and cashiers. Planning and Scheduling places material where it is most needed.

The TelAutograph's transceiver and receivers are stocked with 8,000 forms of continuous-run type. A basic savings of over \$35,000 a year have been made with the installation of this equipment, and future savings are expected to be even higher.



Write for efficiency-producing information on Handling Incoming Materials, Sales Orders, Maintenance Control and other subjects in the free 16-page brochure "The Nerve System Is Communications". Also available on request: "Materials Handling".

Write Dept. DR-44

TelAutograph CORPORATION

16 WEST 61st STREET, NEW YORK 23, N. Y.

†Trade Mark

*TM Reg. U.S. Pat. Off.

afraid to use your notes? The audience won't care even if you pick them up, and say 'I'm going to read this because it's so important, I don't want to forget one bit of it and I don't want you to, either.'"

Silence: It is like a bucking bronco, the way it throws speakers. Since it never lasts as long as one thinks, stop being afraid of silence by learning something about time.

One executive practised this stunt. He'd corner a friend, and say, "The point I want to get across is this," and then he'd pause before adding: "You should buy guinea pigs." He always clocked his pause accurately, asking his victim to guess how long it had lasted. Invariably, it seemed less than it was; a five-second pause would be only two seconds to the listener.

Silence Can Help You

Silence is something to be used effectively. What it will do for you at the beginning of a speech has already been mentioned. In the middle of one, the long pause will revitalize the audience. For example, after a question you've raised, try giving your voice a good rest. Wait, as silence begins to startle your audience, then speak up again: "Well, the answer is this. . . ."

Time: "Twenty minutes is enough time for a speaker to cover everything he has to say." This oft-quoted statement is more wishful thinking than hard truth. It is a fact, however, that audience fatigue sets in at the end of an hour. If you can't hold yourself down to the ideal 20 minutes, at least acquire the habit of spotting the first signs of squirming and blank eyes and quit.

Always give your talk the appearance of having an end, though; don't trail off owing to lack of time or audience fatigue. You can do this, if, beforehand, you estimate how long your summary will take. When all of your time has run out, except that allotted for summarization, stop what you're saying, and swing into the ending.

If you finish in 49 minutes, though you have been scheduled for 60—quit. This is a bonus for the audience. Let the chairman worry about speeches that are undertime.

If you are running overtime, and still have some vital data in your notes—quit. But leave the audience

ADJUST-A-DOCK

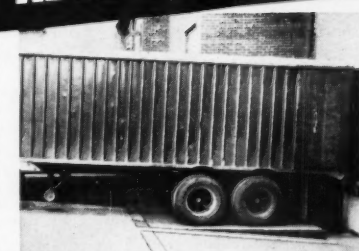


Make Dock Handling A Low-Cost Production Line Operation

You can reap the tremendous savings which accompany effortless, straight-line flow across your shipping docks. ADJUST-A-DOCKS are instantly raised or lowered to meet the level of any over-the-road truck or rail car. Note these unique construction and operating features.

- 1 Full-range raising and lowering, controlled by push buttons.
- 2 Extra-heavy rounded layover arms provide vertical compensation for truck spring deflection.
- 3 Ruggedly constructed to resist dead, live and impact loads. Surfaced with checkered plate.
- 4 Unique bridge design compensates for truck bed sloping either to right or left.
- 5 Each ADJUST-A-DOCK has its own power unit which is easily accessible, economical to maintain.
- 6 Models available with 10,000 and 20,000 capacities, become part of dock when not in use.

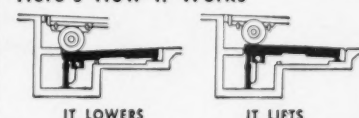
ADJUST-A-TRUCK



Now, When You Can't Adjust Your Docks Because of Lack of Space, You Can Adjust Your Trucks

Here is a unit that is set into the pavement in front of the dock and by means of a heavy-duty electric hydraulic system, it adjusts each vehicle to dock height; its capacity, 40,000 lbs.

Here's How It Works



Write today for this free, informative booklet, illustrating and describing the revolutionary Rowe Adjust-A-Dock and Adjust-A-Truck.

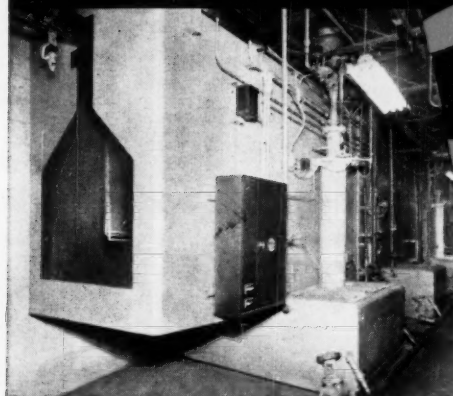


ROWE METHODS, INC.

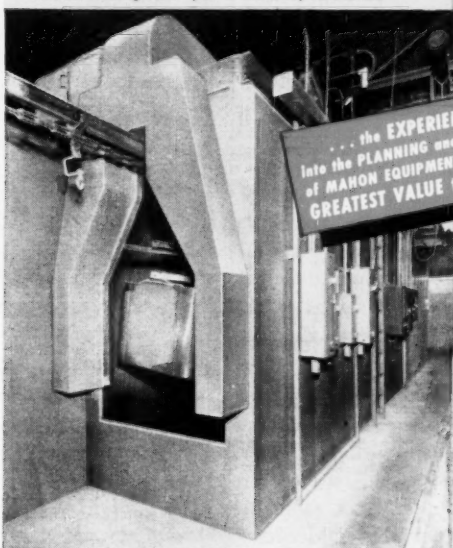
2534-S Detroit Ave.
Cleveland 13, Ohio

COMPLETE *Finishing* SYSTEMS

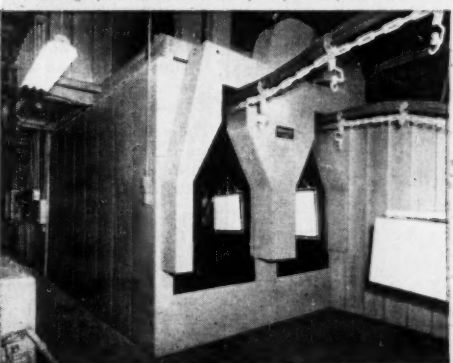
... for ENAMELS • LACQUER • PAINT • VARNISH



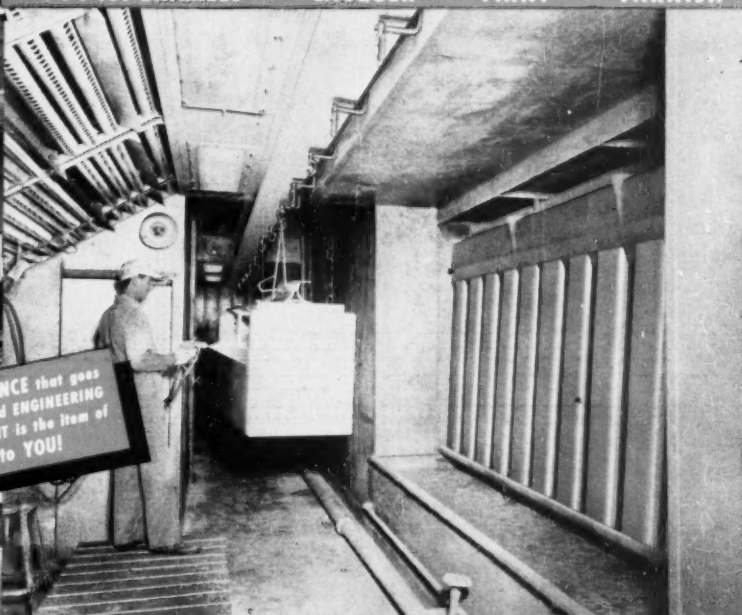
Mahon Metal Cleaning and Rust Proofing Machine with modern FIRE-JET Heating Units—part of the Orley Installation.



Exit end of Mahon Dry-Off Oven—part of the Complete Mahon Finishing System installed for Orley Corporation, Detroit.



Entrance end of Mahon Dry-Off Oven and exit opening of the Finish Baking Oven. Ovens are combined for heating economy.



Interior view of Mahon Hydro-Filter Spray Booths with HYDRAIRE Flood Sheets and Adjustable Air Flow Control which makes for excellent working conditions in Orley's Modern Finishing Department.

... the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!

ORLEY HOME FREEZERS and Other Appliances Receive FINE FINISH in MAHON EQUIPMENT!

Orley Corporation, manufacturers of Orley Home Freezers, and contract painters for other appliance and automobile manufacturers, rely on Mahon Finishing Equipment to produce the quality finish demanded for their own products and for the products of their customers. Major elements of the Orley installation are illustrated here . . . it is another typical Complete Mahon Finishing System including Metal Cleaning and Rust Proofing Equipment, Dry-Off Oven, Hydro-Filter Spray Booths, and a Finish Baking Oven. The choice of Mahon equipment was a wise and logical decision . . . because, more home appliances and more automobiles are painted in Mahon Finishing Systems than all other types combined. If you are contemplating new finishing equipment, you, too, will find Mahon engineers better qualified to advise you on both methods and equipment requirements . . . better qualified to do the all-important planning, coordinating and engineering of equipment—which is the key to fine finishes at minimum cost. You will also find that Mahon equipment is built better for more economical operation over a longer period of time. Mahon's background history in this highly specialized field covers thousands of Complete Finishing Systems including Dip, Flow Coating, and Spray Equipment for every conceivable product painted on a production basis. See Sweet's Plant Engineering File for information, or write for Catalog A-654.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 34, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.
Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning, Pickling, and Rust Proofing Equipment, Hydro-Filter Spray Booths, Dip and Flow Coaters, Filtered Air Supply Systems and Drying and Baking Ovens, Cooling Tunnels, Heat Treating and Quenching Equipment for Aluminum and Magnesium, and other units of Special Production Equipment.

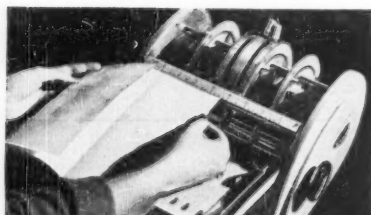
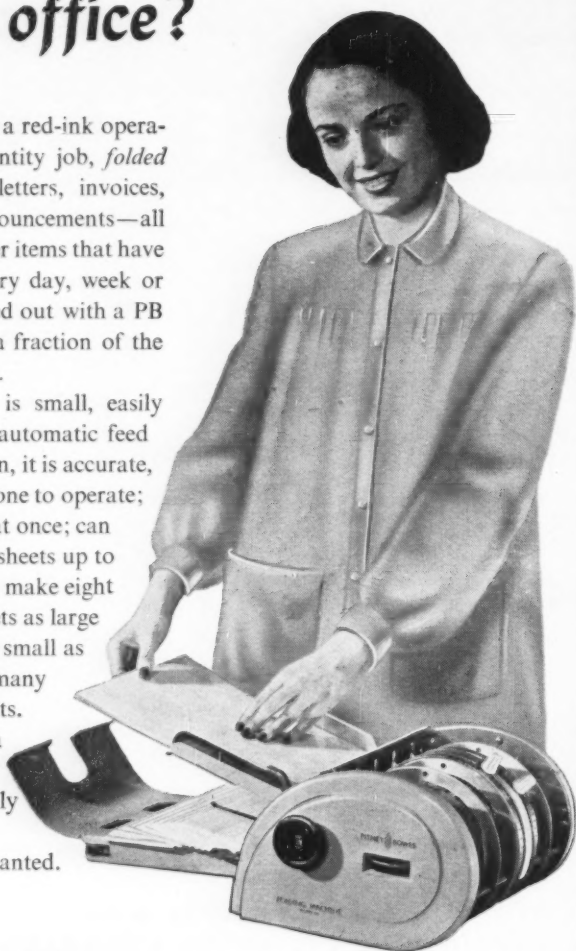
MAHON

Anything folded today in your office?

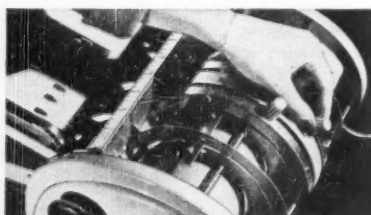
Mark it down as a red-ink operation if it was a quantity job, *folded by hand!* Circular letters, invoices, catalog sheets, announcements—all these, and many other items that have to be gotten out every day, week or month, can be turned out with a PB folding machine at a fraction of the cost of hand folding.

The FH model is small, easily portable. With semi-automatic feed and electrically driven, it is accurate, fast and easy for anyone to operate; can make two folds at once; can double-fold 8½ x 11 sheets up to 5000 per hour. It can make eight different folds in sheets as large as 8½ x 14 inches, as small as 3 x 3 inches, and of many different paper weights.

It takes less than a minute to set the FH for any job; you merely move two knobs to adjust for the folds wanted.



Easy! Fold sample sheet. Measure the folds on metal rule. Then...



Move indicator knobs to widths wanted... And it's ready to go!

Not much larger than a standard typewriter, and costing even less, the FH is a great convenience in any office, large or small... quickly pays for itself. Ask the nearest Pitney-Bowes office to show you—or send the coupon for a free, illustrated booklet.

Fully automatic model FM folds up to 19,000 sheets per hour.



PITNEY-BOWES Folding Machines

Made by Pitney-Bowes, Inc.,... originators of the postage meter... 93 branch offices, with service in 199 cities in U.S. and Canada.

PITNEY-BOWES, INC.
1510 Pacific St., Stamford, Conn.*
Send free booklet on Folding Machine to:

Name _____
Firm _____
Address _____



with the impression that you are loaded. Let it know that you have not covered this item and that item (list them briefly); "you could talk all night," you add, "but it's getting late." This may be too simple for you; however, it pleases the audience. Listeners go away happy. "He did his best to give us everything; just didn't have the time." They even go on to discuss what you *didn't* say in detail about the points you ticked off at the last moment. An undramatic speech ending, perhaps, but it has pleased your audience and promoted discussion.

Watch Out For This

Biggest time wasters are speech clichés. "It is a great pleasure to be here"; "I'm flattered and humbled. . . ." Save time by starting to work for the audience immediately:

"Good afternoon, ladies and gentlemen. The overlapping functions in government bureaus are just plain foolish. If a brown Kodiak bear has twins, one brown and one black, they are under the auspices of two different federal departments."

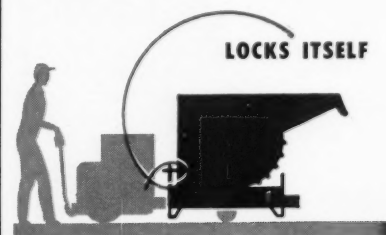
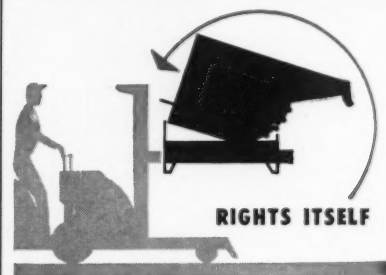
Introducing and being introduced: Don't steal the speaker's thunder by tiring his listeners with a lengthy introduction, or by persuading them he is Moses about to lead them out of the wilderness. Permit him to prove his worth to the group himself. When you are the speaker avoid overwhelming introductions by requesting ahead for one that sticks to your name, where you are from, and your subject.

If an introduction puts you on the spot, try the following trick of a well-known (here, incorrectly identified) speaker:

Said Alfred E. Powell after he was preceded by a University Dean's 20-minute introduction: "This is the first time I have travelled fifteen hundred miles to have someone make my speech for me."

You may try this, that is, if you like to antagonize your audience, and receive on another occasion an introduction by the same Dean that is brief, if nothing else. Said the Dean, "Alfred E. Powell is a wise old owl," and then sat down.

THE END



makes every truck a dump truck!

Fits securely on any standard fork or platform lift truck... can't slip off. Pick-up is quick and easy. Insures fast, efficient handling of any wet or dry, hot or cold bulk materials. Cuts hand unloading by at least 50%... with maximum safety.

This rugged Roura Self-Dumping Hopper is built like a battleship... extra heavy gauge welded construction... to withstand the terrific knocks and bangs of rough usage. Good for years of dependable service. Available in sizes from ½ to 2 cubic yards.

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HERE... is the easy way to get full details about Roura Self-Dumping Hoppers. Just clip this coupon to your letterhead... sign your name... and mail to...

ROURA IRON WORKS, INC.
1419 Woodland Ave., Detroit 11, Michigan

Mr. Executive:

IS YOUR OFFICE LIFE A PARADISE OR A RAT RACE?



*What goes on in
your company?*

What secret struggles for power go on behind-the-scenes? What men are playing the game sharply—buttering the boss, scheming for the key spot, scratching for the advantage—jockeying for the juicy job at the top?

And what of those women behind the men... the svelte, silken women who unsheathe their claws when the struggle gets tough?

M-G-M has made a great drama of the best-seller that tells of a skyscraper tower where the rule of life is fang and claw... and has brought it to the screen boldly, brilliantly, in the big-star tradition!

M-G-M presents

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WILLIAM HOLDEN
JUNE ALLYSON
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WALTER PIDGEON
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DEAN JAGGER • NINA FOCH
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ERNEST LEHMAN • Based On the Novel by
Cameron Hawley • Directed by ROBERT WISE
Produced by JOHN HOUSEMAN
An M-G-M Picture

Watch for it at your motion picture theatre

OWN OR LEASE

(continued from page 60)

the property in good condition. He is, of course, also obligated to send his monthly check to the title owner.

His position differs from the title owner's considerably, in that he does not get a fixed income. If, for example, business declines and the building's income is reduced, the leaseholder continues to pay the fixed rental to the owner.

On the other hand, if he is able to improve the gross income, that additional profit goes into his pocket, less the amount he might have agreed to give to the title owner. There should, of course, be a sufficient margin between the gross annual income and the leaseholder's operating expenses, including rent to the owner, to provide him, the leaseholder, with a fair profit on his investment and for the risk and effort involved in operating the property.

The rent he pays is, of course, tax deductible. I will enumerate what I hope is a comprehensive appraisal of his tax position, when I compare the conventional mortgage with the sale leaseback arrangement.

Group Leaseholders

I have referred to the leaseholder and the title owner as individuals. Actually, this is perhaps simplifying too much. There are instances when the leaseholder may not be a particular person, but rather a group or organization. When I purchased the State-Madison Building in Chicago in 1952, I in turn, sold it to and leased it back from an investing syndicate. Incidentally, this building illustrates a situation that does not exist in the single occupancy building.

The State-Madison Building has many tenants, some of them internationally known, others considerably smaller. This building has a rentable area of over one million square feet and a gross annual income of over \$2.5 million. In this case, should the gross annual income increase, any additional profit will benefit the leaseholder only as there is no provision for the title owner to participate in any additional profits by way of increased income. The title owner in this case is interested only in his fixed

source

Plume & Atwood has been a dependable source for brass and copper alloys since 1869. Sheet, strip — mill coils or cut to length — all are New England quality in the highest tradition.

P & A is a source known intimately by those who looked for the best, found it, and stayed with it.

resources

Utilizing the resources of men, machines and true Yankee inventiveness, P & A has developed outstanding facilities in both mill and fabricating divisions.

If your requirements are for quality mill products, special stampings, drawn or cold headed parts in brass (or other metals), we invite you to call us, visit with us, let our experience answer your problems.

Brass

SHEET, STRIP • FORMED, FABRICATED



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"WHAT'S BEHIND IT?" THAT'S
the true measure of lighting fixture value. Behind the Quality and Continuous Dependability of Miller Fluorescent, Incandescent, Mercury fixtures for industry, commerce and schools—are 110 years manufacturing know-how—1,000 combined man years field lighting engineering—million-dollar production facilities.

Meriden, Conn. Leaders in lighting since 1844

annual yield from the property.

Some of the nation's leading corporations have profited by, in a sense, getting out of the real estate business. They prefer to have their capital available for the operation of their respective business, and not tied up in property.

Many department stores, too, are long-term leaseholders in buildings to which they formerly held title.

They receive an advantageous tax picture, since the entire rent they pay is fully deductible. Further, any well-rated company owning the structure it occupies in its entirety, whether it be a department store, factory, or office building would no doubt own it free of mortgage or encumbrance. This reflects in its statement a substantial investment frozen in brick, mortar, and steel. But by selling the property to others, whether to an insurance company, trust, or pension fund, or a private investor, and leasing it back for a long period of years, the firm gets the benefit of additional working capital, while still having the use of the property for its purposes.

Why Not Mortgages?

I had occasion to explain this to a group of industrialists recently at an informal meeting. One of the men said his firm would have no difficulty in raising a mortgage of several million dollars on the property it owns and occupies. Since this method of financing would release a good part of its capital, he wanted to know why they should look for a different method of financing. He forgot that when a firm such as his obtains a mortgage they undertake a definite financial mortgage obligation, and this must reflect as a liability on its financial statement.

There are definite advantages for a well-rated firm in disposing of its property by sale and acquiring cash for additional working capital, obligating itself only to a lease. This obligation, while it may last for the term of the lease, does not reflect on its financial statement. There is only an ordinary contingent obligation as contrasted with the very definite substantial liability by the execution of a bond and mortgage which would reflect on its books.

Actually, the tax situation with relation to the leaseback pattern is, if I may understate it, provocative

FUEL COSTS REDUCED almost 95%



Here's real economy! This 35-ton Plymouth with Torqomotive Drive* operates for more than 18 weeks on the amount of fuel its predecessor of similar size used in 1 week! Coupled with this reduction in fuel use were tremendous savings in maintenance and repairs, especially clutches. Pittsburgh Ferrous Products Company (Mifflin Works), Glassport, Pennsylvania, uses this modern Plymouth to haul up to 8 cars loaded with scrap metal over 2% grades and around tight curves. It pulls, switches and spots with sure, time-saving smoothness. These are some of the many advantages awaiting you in the great Plymouth line. Why not get the whole story? Write for descriptive catalog. Models from 3 to 70 ton, Gasoline, Diesel, Diesel-Electric, with mechanical or Torqomotive Drive.

THE FATE-ROOT-HEATH COMPANY,
Dept. A-19, Plymouth, Ohio.

PLYMOUTH
TORQOMOTIVE
LOCOMOTIVES

*Torqomotive Drive: Plymouth transmission with hydraulic torque converter.

BOOST YOUR PROFIT CURVE



POWEROX—Model POK for fast loading up to 4,000 lb.

WORTH LOOKING INTO

Efficient materials handling is one way many Barrett users cut down overhead to raise profits.

If your operation requires skid handling, platform loading, elevator stacking or tractor hauling, you will find sturdy, long-life Barrett engineered equipment to do the job efficiently and at low maintenance cost. Let Barrett conserve labor, time and space by ending repeated loading, unloading, piling and unpling.

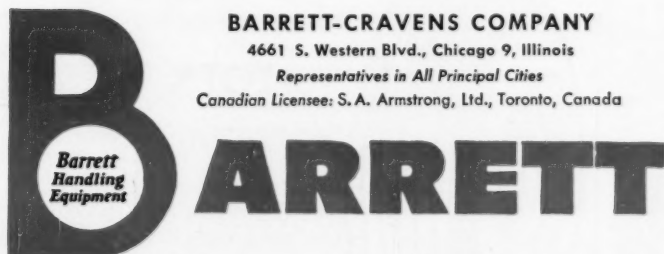
Look into the savings a **BARRETT SYSTEM** can earn for you. A Barrett representative will gladly consult with you and recommend the proper handling and storage equipment to help boost your profit curve.

BARRETT-CRAVENS COMPANY

4661 S. Western Blvd., Chicago 9, Illinois

Representatives in All Principal Cities

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PALLETIER—For standard plant and warehouse material handling. 1,000 to 8,000 lb.

AISLE SAVER—Stand-up model. Extremely maneuverable. 1,000 to 4,000 lb.

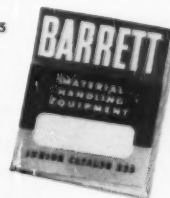
ELEVATORS—Portable. Hand or electric. 500 to 2,000 lb.

PALLETIX—Electric. For pallet loads. 4" hydraulic lift. 4,000 to 6,000 lb.

LIFT-TRUCKS—Mechanical or hydraulic. Various lengths, widths, heights. 2,500 to 6,000 lb.

SKIDS—Sturdy STEELEG skids and box tops. All sizes (standard and special.)

GET CATALOG 535 on the complete Barrett line. A request will bring your copy promptly.



ONE MAN DOES MORE THAN 3 OR 4...WITH A BARRETT

Stop That Skid!

Heinn Can Stop Any Sales Skid Caused by Obsolete Cataloging Methods

What happens when your catalogs contain discontinued items, obsolete descriptions or last year's prices? Your salesmen spend more time explaining than selling — and sales volume drops.

What happens when your selling material stays up to date and in sequence with Heinn Loose-Leaf Binders? Your salesmen tell their story fast and well, and close orders more quickly than ever before. You cut sales correspondence . . . make savings by simplifying print jobs . . . get better distribution of inexpensive, easy-to-mail inserts . . . make a much better impression on good customers.

The experience of thousands of America's leading companies proves that Heinn home-office planning helps keep those sales-graph lines moving up.

WHERE'S THAT #1*?!@ SHEET?

He'd find facts in three seconds with Heinn indexing.

Let Heinn supply your celluloid indexes.

Originators of the Loose-Leaf System of Cataloging
Leaders in 1896 . . . and Still Leaders

Representatives in Principal Cities

Mail This Coupon

THE HEINN COMPANY
310 W. Florida St., Milwaukee 4, Wis.
Information, please.

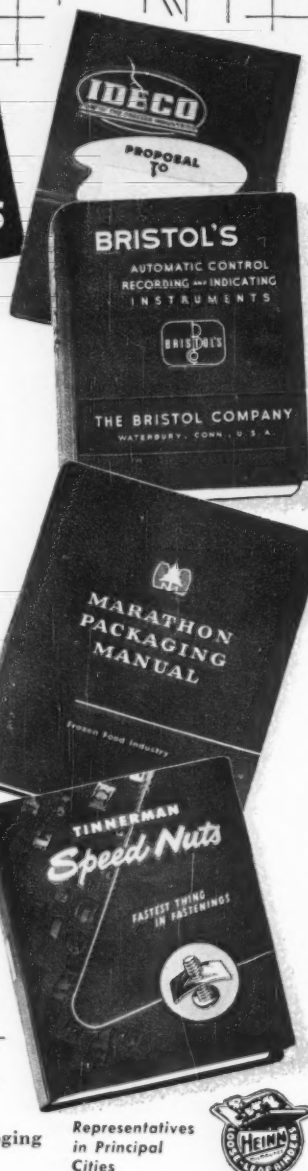
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| <input type="checkbox"/> Easel Presentations | <input type="checkbox"/> Acetate Envelopes | <input type="checkbox"/> Sales-Pacs |
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ADDRESS _____

CITY _____ STATE _____



indeed. I was able to make it fully clear to these gentlemen by citing a transaction example and going into some detail about it. Let me give you this to illustrate the tax advantages to the leaseholder.

The property I refer to is located on Fifth Avenue, New York City. It is a 33-story, first-class office building, covering a plot of 25,000 square feet, having a frontage of 100 feet on Fifth Avenue. It has a gross annual income of \$1.3 million.

I purchased it in 1951. In this particular case, I found it advisable to sell the land under the building to a life insurance company, who purchased the land as an investment. The company did not purchase the building in this case, but only the land under the building for the amount of \$3.75 million. It leased the land back to me for a long period of years. I now own only the building and have a leasehold on the land under the building.

Many Factors

Now, just as my industrialist friend, I could have obtained a

conventional mortgage from the insurance company covering the land and building. Because this comparison illustrates the distinctions between a mortgage and a sale and leaseback method, let us look at some of the figures. I said that I could have obtained a mortgage instead of selling the land. Yes, I could have obtained a mortgage—of \$3.75 million—by paying a 6½ per cent constant rate for interest and amortization. I could have liquidated the mortgage at the end of 26 years and six months. Why did I elect the sale and leaseback of the land?

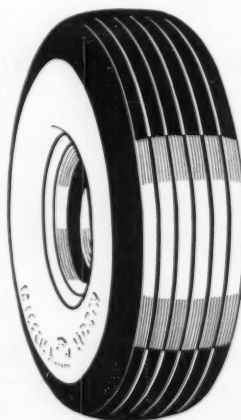
I decided that I would be better off selling the land, and for the first 26 years and six months, pay a rental of \$244,000 annually. This is equivalent to 6½ per cent on \$3.75 million. However, under the arrangements in the lease, the rental, after 26 years and six months, is reduced to \$100,000 per year. It is true that I shall always have to pay rent, and that I never own the land.

Had I taken a conventional mortgage, I would have liquidated it in 26 years and six months, by

Mr. Tire Manufacturer: WHAT ARE YOU DOING ABOUT NYLON?

Let's face it. The day of the nylon cord tire is here to stay. Industrial Ovens, Inc. can help you get ready for volume production. Shown here are some of the companies now using full width tire cord latexing equipment made by IOI, the world's largest producers of this type of machinery.

Write for IOI Bulletin, "Tire Fabric Machinery"



SOME USERS OF IOI EQUIPMENT:



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INDUSTRIAL Ovens, Inc.
13805 TRISKETT ROAD CLEVELAND 11, OHIO





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L. F. Rothschild & Co., N.Y.C., one of the country's leading Stock Exchange firms, calls their Recordak installation "One of the smartest investments we ever made." Total cost in 1953 for Recordak Microfilmer, Film Reader and Microfilm was \$1,675. Now see how they figure their \$15,000 per year savings. It may suggest ideas for your business, regardless of its type or size.

\$10,500 saved by eliminating manual transcription. No longer is it necessary to transcribe by hand the stock certificate numbers for the millions of dollars worth of securities passing through the firm's hands. Or to keep two men busy every day listing the certificate numbers and the amount of shares on customer-stocks going ex-dividend. This job, for example, is now done in one hour daily by the girl at the Recordak Microfilmer.

Transcription errors and resultant tie-ups are also a thing of the past. The Recordak Microfilmer photographs documents as fast as they are fed with 100% accuracy.

Plus a \$2,700 saving in stationery. Recordak Microfilming reduced twenty-four separate office routines to eight, which eliminated the use of many office forms, records and carbon copies.

Plus an \$800 saving in postage and express charges. Recordak Microfilms have replaced the duplicate paper

records of transactions and can be mailed to the out-of-town vault at a fraction of the old cost.

Plus a \$1,000 saving in vault-storage and record-elimination costs. Their Recordak Microfilms can be stored in approximately 2% of the space previously required, will remain intact year after year. Extra protection which L. F. Rothschild appreciates.

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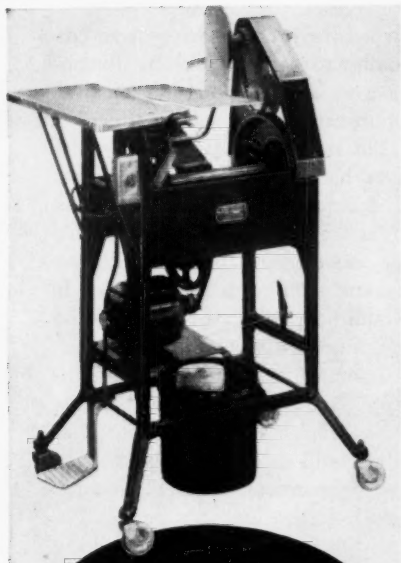
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**ROLLER
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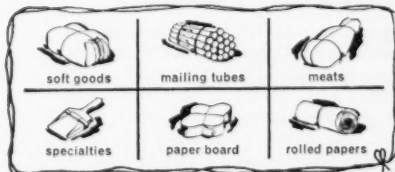
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It takes just 1½ seconds for this machine to wrap twine around a package and tie that twine with a knot that never slips! You've got to see this speed to fully appreciate how time-wasting, how costly, how obsolete hand tying has really become.

And the machine adjusts itself automatically when you feed it packages of different sizes and shapes in succession!

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BUNN the original package tying machine
ESTABLISHED 1907

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SEND TODAY
for this free,
highly-illustrated
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Dept. DR-4
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Please rush me Booklet 200 describing how Bunn machines cut costs, save twine, lick labor turnover.

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COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

paying the sum of \$244,000 a year for interest and amortization.

After liquidating a very substantial obligation, I would not have to contend with interest and amortization and would own the property without any encumbrance at the end of this period. As a matter of fact, I might even be eligible, at the end of the 26-year, six-month period, for new financing by way of a conventional mortgage when the first mortgage had been fully liquidated.

Tax Savings

Let's look at the federal tax picture. If I liquidated the \$3.75 million mortgage by annual amortization payments of \$139,000 over a period of 26 years and six months, the total amortization or reduction of the mortgage would amount to \$3.75 million. As far as the Government is concerned, this money, though not pocketed by the title owner, is all counted as income and is all taxable. Just imagine adding this annual amortization of \$139,000 to the operating profit. Let's not forget that the operating profit of a building of this type, after all expenses, is very substantial. In fact it comes to approximately \$400,000 annually.

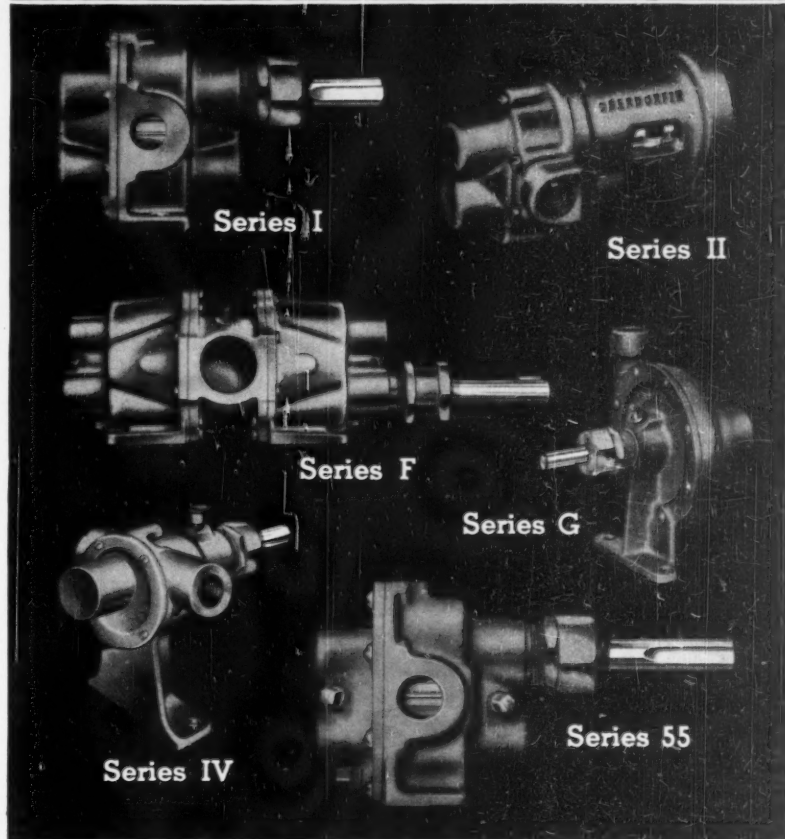
Under the mortgage arrangement, the annual operating profit, after servicing the mortgage, would be approximately \$400,000 a year. Adding to this the amortization of \$139,000 which is not deductible, I would be answerable to the Government taxwise for approximately \$539,000, of course before depreciation.

By the sale leaseback plan, we are able to deduct the land rental of \$244,000 annually in addition to the depreciation. In this case, as



"Before we hear the treasurer's report, promise you won't walk out of here horror-stricken."

Economical Bronze Design



Series I—Heavy duty bronze rotary gear pumps
Oilless bearings 2-23 G.P.M.—0-100 P.S.I.

Series II—Close coupled motor driven bronze pumps
Oilless bearings 2-4 G.P.M.—0-100 P.S.I.

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Oilless bearings 50-150 G.P.M.—0-150 P.S.I.

Series IV—Rubber impeller bronze pumps
Oilless bearings 6-21 G.P.M.—0-30 P.S.I.

Series 55—Standard bronze rotary gear pumps
Grease fittings 2-23 G.P.M.—0-100 P.S.I.

Series G—Standard bronze centrifugal pumps
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Industrial Pump Div., Oberdorfer Foundries, Inc.
737 Thompson Rd., Syracuse, N. Y.

Address the 1954 edition of the Oberdorfer Industrial Pump catalog to:

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COMPANY _____

ADDRESS _____

Do you want a factory representative to call ☐ Yes ☐ No

Here's why

TODAY'S NEW EQUIPMENT IS SMALLER-- MORE EFFICIENT--LESS COSTLY!



**DIFFUSED JUNCTION
GERMANIUM
RECTIFIERS**



THE CHANGES which evolve every day in the design of new equipment incorporating germanium rectifiers are in the forefront of any discussion on electronic progress. This miniature component has replaced other rectifiers many times its size and its long life makes it useful in a variety of applications. And, performance of this G-E germanium product is singularly more outstanding than any tube or dry rectifier counterpart!

Currently, the G-E rectifier is employed in telephone circuits to simplify...speed...even make operations more dependable. In radio or record player filament supplies it reduces hum...improves reproduction quality. In calculating machines, control equipment and a host of other products it prolongs equipment life...makes entirely new functions possible.

Now, with the development of stacked arrangements, voltage and current ratings are boosted to such an extent that most rectification problems can be solved by a G-E germanium rectifier.

Send your circuitry design problems to us. General Electric application engineers can point the way to obtaining the equipment features you prefer...in size...weight...cost and efficiency.

General Electric Company, Section X7844, Electronics Park, Syracuse, N. Y.

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title owner of the building, I can claim all depreciation on it. Deducting the annual rental charge of \$244,000 and eliminating the amortization makes me answerable for only \$400,000 before depreciation.

The difference in taxes between paying on \$539,000 or paying on \$400,000 before depreciation is, as you can see, very considerable. If you took that annual saving and multiplied it by 26 years and six months, I think one would find that at the end of the 26-year, six-month period, just by reinvesting it at 4½ per cent, that the principal would have accumulated close to the original principal.

Two Methods

It might be helpful to review the pattern without the specific figures. Here is a run-down of the situations under the two different methods of financing:

I could have obtained a conventional mortgage from the insurance company covering the land and the building. There would have been an obligation to pay interest and amortization. After a number of years, the mortgage would have been liquidated. I would then have

owned the property without an encumbrance and would no longer have to contend with interest and amortization.

But in respect to taxes, I would have had a less favorable picture. If I liquidated the mortgage, as far as the Government is concerned, the amortization is all counted as income and thus is taxable. It would have had to be added to the building's net annual income.

I would be able to deduct the interest on the mortgage and depreciation on the building, but that would still leave me answerable to the Government for the net income plus amortization.

By selling the land and taking back a long-term lease, I incurred the obligation of paying continuous rent. That may seem a peculiar choice, but I think it presents decided economic advantages.

The rental for the land is the same amount I would have paid in interest and amortization on a conventional mortgage. After the 26-year, six-month period, the rent will be substantially reduced.

All of that rent is fully tax deductible. Adding this to the depreciation allowance, which I am still

Transportation was this plant's big location problem...

WHAT'S YOURS?



A manufacturer of specialty goods wanted to establish a new factory in the northeastern market, within easy reach of large L.C.L. shipping terminals. He consulted the Industrial Location Service of the State of New York, and soon had complete, confidential data on several sites with transportation facilities meeting the needed rate and time schedules. He was then able to choose the right location without delay.

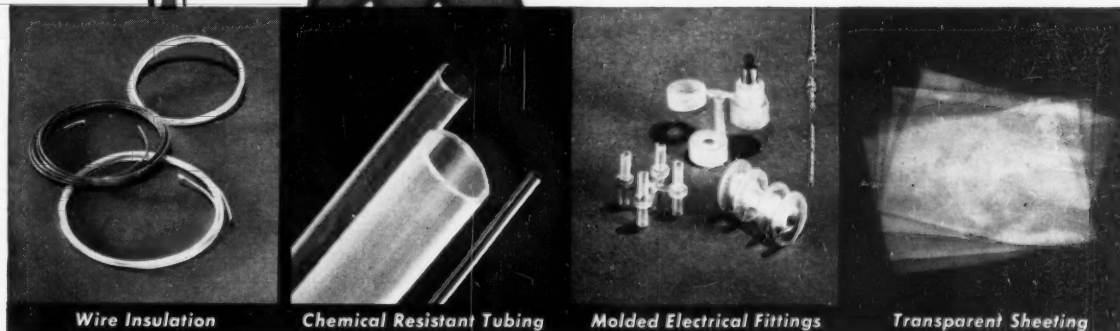
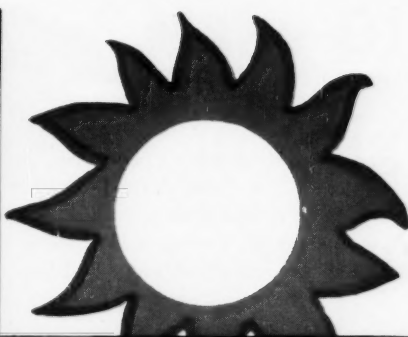
You can get complete, accurate and confidential information—without obligation—from the Industrial Location Service, on the following important site factors: *Labor, sites, raw materials, transportation, community services, markets, power and fuel, available buildings, and state regulations.*

GET FREE BROCHURE: "Industrial Location Services." Also detailed physical map of N. Y. State. Write New York State Department of Commerce, Room 721, 112 State St., Albany 7, N. Y.



**Industrial Location Service of
New York State**

"WE DON'T SELL SITES—WE MATCH NEEDS"

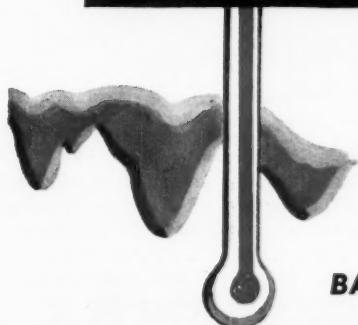


Wire Insulation

Chemical Resistant Tubing

Molded Electrical Fittings

Transparent Sheetting



From MINUS 320 Deg. F. to PLUS 390 Deg. F.

Wide Working Temperature Range of
BAKELITE FLUOROTHENE Opens New Fields to Plastics Industry

Products made from BAKELITE Fluorothenes can be used effectively between minus 320 deg. F. and plus 390 deg. F. Successful experiments have shown that these materials are practicable for high-temperature wire insulation, valve seats, gaskets, and insulation for printed circuits.

They have excellent chemical resistance. For example, fluorothene is used for containers and piping to carry corrosive chemicals such as fuming nitric acid. An outstanding electrical property, especially at elevated temperatures, is volume resistivity which is so high that it can be measured only by extremely sensitive instruments.

BAKELITE Fluorothenes are rigid ther-

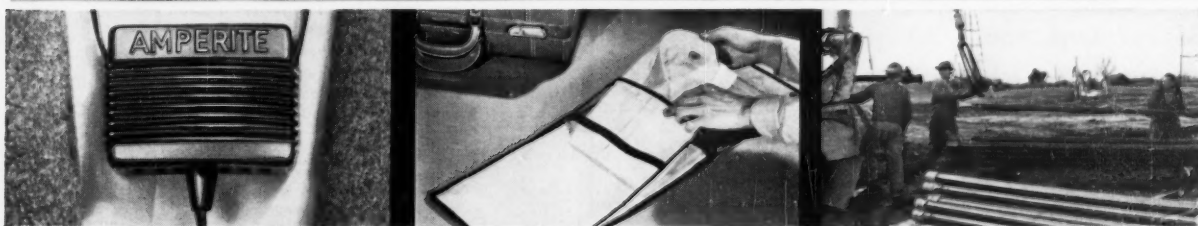
moplastic polymers—so hard that hammer blows on a solid piece hardly leave a mark. Long periods of submersion reveal no sign of moisture absorption. Tests on various thicknesses of wire insulated with fluorothenes showed that they will not support combustion.

These characteristics are already generating interest among industries connected with chemical processing, electric power, packaging, medical supplies, radio and television. Detailed technical information is available from Bakelite Company in a free booklet describing the forms, properties, and fabrication of BAKELITE Fluorothenes. To get your copy, write Dept. TD-15.

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LAPEL MICROPHONE CASE molded of BAKELITE Vinyl Elastomeric Plastic fits snugly around delicate electrical assembly, stays flexible and resilient for protection. Deep undercuts are possible because material is easily removed from the mold. Made by Amperite Co., New York, N. Y.

SHIRT CASE with top made of BAKELITE Vinyl Cast Film keeps linen fresh in suitcase. Tough, non-cracking film withstands repeated folding. Outstanding transparency is long-lived. Other features include light weight and moisture resistance. Made by Emil Hervey Designs, New York, N. Y.

EASILY LIFTED by one man, 20-foot length of 4½" O. D. "Fibercast" reinforced plastic pipe, made with BAKELITE Polyester Resins, speeds installation. Corrosion-resistant, non-shattering, it's used to carry salt water, sour crudes in oil fields. Made by Fibercast Corp., Sand Springs, Okla.

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Large and Small Installations alike



Save up to 55% on

Record Keeping Costs!



Apply this modern machine filing system to your records. ROL-DEX cuts overhead - automatically increases profits!

Records roll to the seated operator. Cuts fatigue . . . lessens chance of error. ROL-DEX is built to fit your needs—large or small! Use your present records . . . No new forms to buy . . . Nothing to retype. Inquire about ROL-DEX now!



NO WALKING



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Rol-Dex Division, Dept. D-11
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Please send me information about ROL-DEX record units.

Company.....
Name..... Title.....
Street..... Zone.....
City..... State.....

Watson also builds a complete line of filing cabinets and courthouse, bank and hospital equipment.

entitled to take on the building, makes for a substantial reduction in the taxes.

We have discussed the reason that many corporations sell and lease back buildings they have occupied for years. For the firm that wishes to have a new plant, there is even a more dramatic path. The well-rated firm can work out a financial arrangement along the lines described on a building that doesn't even exist. Rather than tie up its working capital in brick, mortar, and steel, a highly rated corporation, which requires the use of a building for its own use over a long period of years, can make arrangements with a responsible contractor and builder, indicating where it would like to locate, and just what type of building it requires. The proposed builder-landlord would then negotiate the purchase of the land, arrange the engineering and planning, construct the building according to the tenant's requirements, and enter into a long-term lease with the tenant user.

When the building is fully completed, the company moves in, at no time putting its hand in its

pocket for 5 cents. This is a comparatively new concept, and I predict it will be a trend for large firms who do not have buildings to sell and lease back, but who would like to have a building constructed for their own special requirements. It does not obligate itself on a bond and mortgage liability, which would reflect on its financial statement.

As you may have gathered, real estate financing can be complicated. One cannot say either that the sale leaseback method is advantageous for every property. There are situations where the conventional financing might be preferable. One way to know is to gather all the facts in the matter first so that expert judgment can then make the evaluation.

Secondary financing of commercial and industrial real estate to-day, a banker told me recently, is as creative as writing a book or painting a picture. I'll say this: Each property is completely different. Each, therefore, takes considerable time and planning. If this relates to books and paintings, then I agree with my banker friend.

THE END.

LISTEN

STOP THE
WHAM-WHAM-WHAM
OF THAT INTAKE OR EXHAUST

with a
**BURGESS-MANNING
SNUBBER**

There is no engine, compressor, blower, vacuum pump, steam or gas turbine too large or too small to be effectively silenced by a Burgess-Manning Snubber. Too—they give you a choice of plus values as: combination of noise reduction and air cleaning—or heat recovery—or spark arresting—or surge control—or water separating. Insure greater equipment efficiency, better oral communication in your plant, and prevent costly compensation claims.

We invite you to submit your problems—no obligation.



BURGESS-MANNING COMPANY

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Make Office Photocopies in Brighter Light on Peerless DRI-STAT "Bright-Light" Paper

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"Bright-Light" paper offers, for the first time, office photocopying that truly deserves the name. Developed by Peerless Photo Products, Inc., DRI-STAT "Bright-Light" paper allows you to make sharp, clear, black-and-white photocopies of any original, under the normal levels of illumination in today's modern offices . . . fluorescent or incandescent light of fairly high intensity, or subdued daylight. Here, at last, is a paper that will give you good results under four to five times more light than you could ever work in before.

Now you can really make full use of transfer-process photocopying . . . the modern, quick, inexpensive method of making exact copies of anything written, drawn, or printed . . . anywhere in your office. No longer need you put up with the inconvenience of having to locate your photocopy equipment in an out-of-the-way corner, a stuffy closet or a crowded stockroom. When you use the new DRI-STAT "Bright-Light" paper, you can put your photocopy equipment right where you want it . . . right where it's most convenient and comfortable to use . . . and get sparkling, clear, black-and-white copies, regardless of room illumination.

DRI-STAT papers give these amazing results not only on DRI-STAT equipment, but with almost every other type of transfer-process photocopying equipment now on the market. If you already have such equipment, try DRI-STAT papers and see the improvement!

You Save Time and Money with DRI-STAT

You can copy originals up to 11" by 17" in size on DRI-STAT equipment, or continuous strip matter up to 12" wide. Results are equally good from opaque or translucent originals, since copying can be done either by the reflex or the contact method.

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DRI-STAT equipment takes up less space than a typewriter, can be used right in the department (or branch office) where photocopies are needed. The originals never leave your possession. Copies are ready in less than one minute, cost less than 10 cents apiece.

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Anyone in your office can quickly learn how to make good DRI-STAT copies. No extra help with special training is needed. No darkroom is needed, and there are no messy trays of developing solution.

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Try DRI-STAT papers on your own work. For a demonstration, call or write your Peerless distributor, or clip and mail the coupon below.

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PEERLESS PHOTO PRODUCTS, Inc.
Shoreham, Long Island, New York

☐ I'd like to see a demonstration of the DRI-STAT process on my work.

☐ Please send me your free brochure describing the DRI-STAT papers and equipment.

Name..... DR-4
(Clip or staple to your business card or letterhead)

Send the coupon today for full details →

Commercial Credit Reports on a Record Year

IN 1953 VOLUME handled by the financing operations amounted to more than 3 BILLION 100 MILLION DOLLARS. Earned premiums of the insurance companies exceeded 47 MILLION. Sales of the manufacturing companies were over 110 MILLION.

COMMERCIAL CREDIT's net income before taxes exceeded 52 MILLION DOLLARS and 23 MILLION after U. S. and Canadian taxes on income. Reserves of over 100 MILLION DOLLARS were available for credit to future operations, expenses, credit losses and earnings. Capital funds exceeded 148 MILLION DOLLARS and total resources as of December 31, 1953, were more than 1 BILLION DOLLARS. All of these figures represent new highs in COMMERCIAL CREDIT's history.

We are grateful to the manufacturers, wholesalers, retailers and consumers who made such substantial use of our facilities and to stockholders and others who provided our operating funds. Particularly, we want to pay tribute to the officers and employees of COMMERCIAL CREDIT and its Subsidiaries for their intelligent and enthusiastic handling of their company's affairs.

Alexander E. Duncan
Chairman of the Board

E. S. Harchuk
President



Copies of our 42nd Annual Report available upon request

**COMMERCIAL
CREDIT COMPANY**

BALTIMORE 2, MARYLAND

Offering services through subsidiaries in more than 400 Offices in U.S. and Canada

Condensed Consolidated Balance Sheets as of December 31, 1953 and 1952

	1953	1952
ASSETS		
CASH AND MARKETABLE SECURITIES.....	\$ 143 194 074	\$ 153 919 460
RECEIVABLES:		
Motor and Other Retail.....	\$ 641 240 127	\$ 570 189 287
Motor and Other Wholesale ..	135 148 774	151 333 622
Direct Loan Receivables	40 302 307	48 598 257
Commercial and Other Receivables.....	126 048 068	125 396 090
	\$ 942 739 276	\$ 895 517 256
Less: Unearned Income.....	44 863 451	41 084 860
Reserve for Losses	14 246 328	14 012 726
Total receivables, net..	\$ 883 629 497	\$ 840 419 670
OTHER CURRENT ASSETS..	22 924 942	21 385 278
FIXED AND OTHER ASSETS	13 063 893	10 708 186
DEFERRED CHARGES.....	5 884 287	5 520 118
	<u>\$1 068 696 693</u>	<u>\$1 031 952 712</u>

	1953	1952
LIABILITIES		
NOTES PAYABLE, SHORT TERM.....	\$ 483 290 000	\$ 577 165 500
ACCOUNTS PAYABLE AND ACCRUALS	37 053 609	37 207 083
U.S. AND CANADIAN INCOME TAXES.....	31 581 121	27 474 607
RESERVES.....	76 048 758	71 896 230
LONG-TERM NOTES.....	192 625 000	124 000 000
SUBORDINATED LONG-TERM NOTES	100 000 000	60 000 000
NET WORTH:		
Common Stock.....	45 770 510	45 645 060
Capital Surplus.....	15 591 922	15 369 499
Earned Surplus.....	86 735 773	73 194 733
Total Net Worth.....	\$ 148 098 205	\$ 134 209 292
	<u>\$1 068 696 693</u>	<u>\$1 031 952 712</u>

A Few Facts as of December 31, 1953 and 1952

	1953	1952
Gross Finance Receivables Acquired	\$3 111 621 259	\$2 907 587 057
Gross Insurance Premiums, Prior to Reinsurance.....	49 718 572	53 278 791
Net Sales Manufacturing Companies	110 709 890	102 223 306
Gross Income—Finance Companies	\$ 82 837 816	\$ 67 276 338
Earned Insurance Premiums, etc. .	47 003 129	43 455 275
Gross Profit—Manufacturing Companies	16 651 081	15 718 283
Investment and Sundry Income...	2 187 836	2 947 224
Gross Income.....	\$ 148 679 862	\$ 129 397 120
Total Expenses and Reserves, etc.	71 389 320	68 494 366
Interest and Discount Charges....	25 136 968	18 552 284

	1953	1952
Net Income before U.S. and Canadian Taxes.....	\$52 153 574	\$42 350 470
Less U. S. and Canadian Taxes on Income.....	28 305 583	22 536 163
Net Income of		
Finance Companies.....	\$14 492 050	\$12 197 428
Insurance Companies.....	5 454 085	3 531 614
Manufacturing Companies...	3 901 856	4 085 265
Total Credited to Earned Surplus.....	\$23 847 991	\$19 814 307
Common Stock Per Share		
Net Income.....	\$5.21	\$4.34
U. S. and Canadian Tax on Income.....	6.18	4.94
Dividends.....	2.40	2.40
Book Value.....	32.35	29.40
Interest and Discount Charges—times earned.....	3.07	3.28

NEW METHODS AND MATERIALS

*Tough plastics for your plant, new coats for your product,
machines that solve problems for both. Here is the news this month.*



Bright metallic finish, applied by vacuum deposition, adds sales appeal to plastic saxophone. Process can help many other products as well.

Highlighting products with high-vacuum coats

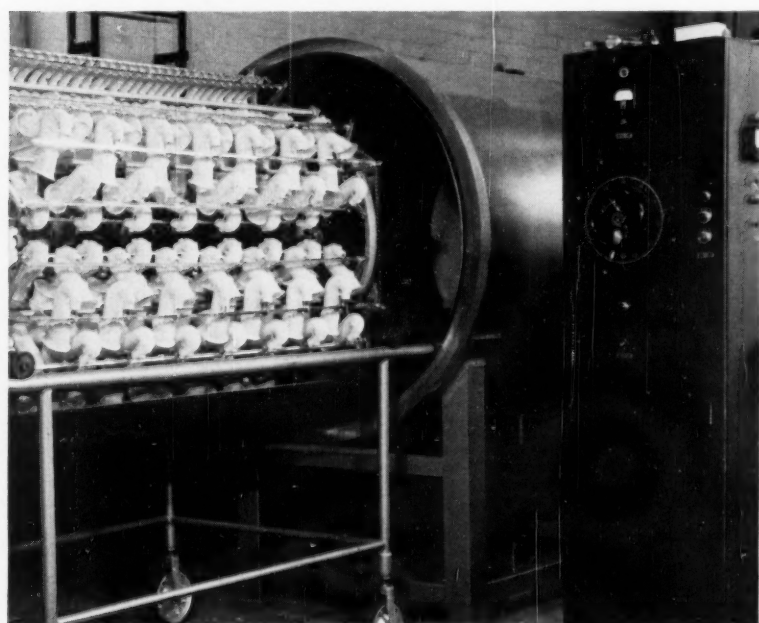
HIGH-VACUUM techniques for depositing metallic coatings on glass, plastics, ceramics, and metals are now coming into their own. Makers of toys, television tubes, industrial machinery, and photographic equipment, and a host of other products find vacuum metallizing offers new product engineering possibilities as well as added sales appeal.

It helps reduce production costs, too, because it permits a very thin, uniform layer to be deposited—thus saving material, and eliminating or greatly reducing the amount of buffing and polishing required. Furthermore, since vacuum metallizing involves little heat and no moisture, it can be applied to materials which might be damaged by other coating techniques.

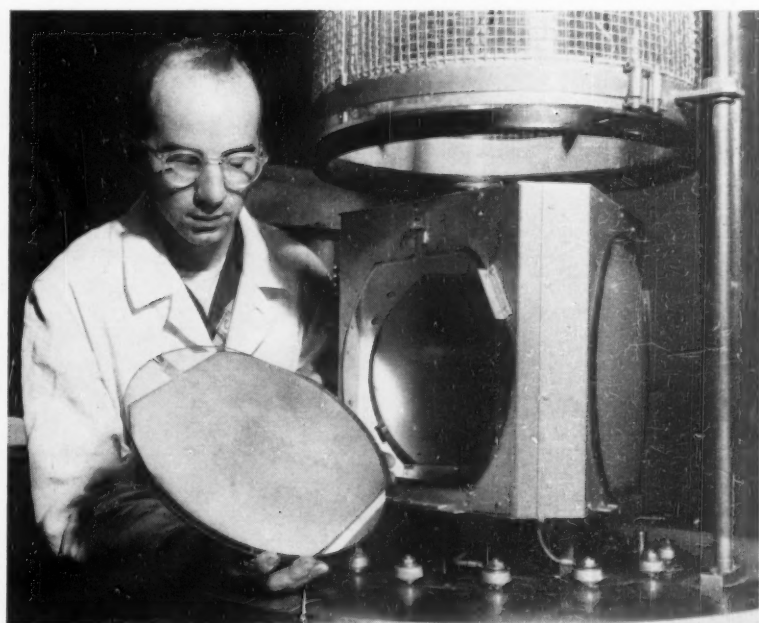
Essentially, a vacuum-metallizing unit consists of a closed chamber from which air can be

exhausted and a heating unit which will vaporize the metal to be deposited. When air is removed, this vaporization proceeds rapidly, and the metallic vapor condenses on the parts to be coated in a smooth, uniform layer. Thickness of the coating may be readily controlled, and a wide variety of metals and alloys can be deposited, including some refractory materials that are almost impossible to apply in any other way. For instance, borides, carbides, and nitrides of nickel, titanium, and tantalum may be vacuum coated on nozzles, die blocks, instrument parts, and other items subject to extreme wear and corrosion.

Equipment for vacuum metallizing is now obtainable in a wide range of sizes—from small bell jar units to mammoth 72-inch cylinders. Manufacturers of such equipment include Consolidated Vacuum Corporation, Rochester 3, N. Y.; General Electric Company, Schenectady 5, N. Y.; High Vacuum Equipment Corporation, Hingham, Mass.; National Research Cor-



Two hundred saxophones are aluminum-coated at once in this 48-inch Stokes vacuum metallizer. Coating can later be colored to simulate brass.



Phosphor plates for color TV tubes are aluminized in bell jar-type vacuum equipment at GE's Electronics Division. This unit handles three at a time.

poration, Cambridge 42, Mass.; and F. J. Stokes Machine Company, Philadelphia 20, Pa.

Those who want to learn more about the method and its applications can obtain a great deal of information from these companies, and also from the recently formed Committee on Vacuum Techniques, Box 1282, Boston 9, Mass. A high-vacuum symposium, sponsored by the CVT, will be held June 16-18 at Asbury Park, N. J., and will cover production of high-purity metals, pressure vessel testing, and other uses for high vacuum, as well as vacuum metallizing.

Tough plastics for plant use

Plastic piping, pumps, ducts, and tanks considered hardly more than a novelty a few years ago, are now proving their ability to do a job under the toughest plant conditions.

Almost every type of plastic can be and is being used for plant piping and related equipment—both thermoplastics and thermosetting materials (see *Modern Industry*, April 1952, page 50). But, when the going gets really tough, and



Non-sticking and non-aging, Teflon thread-sealing compound can be used on both metal and plastic pipe. Eco Engineering Company makes it.

elevated temperatures are encountered, the choice narrows down to such thermosetting materials as the phenolics and polyesters, and such special materials as the silicones and fluorine plastics (both "Teflon"—polytetrafluoroethylene—and the trifluorochloroethylenes, "Fluorothene" and "Kel-F").

The development of Teflon-glass fiber laminates for plant piping (coupled section at left in photograph below) is particularly interesting. This fluorine plastic has outstanding resistance to heat and chemicals. But it's so resistant that it has been extremely difficult to fabricate. Recently, however, a great deal of progress has been made, and it's now possible to obtain a wide variety of Teflon gaskets, packings, bellows, and diaphragms as well as the tubing itself. In addition, Teflon "pastes" are offered by at least two companies for use as sealing compounds on threaded connections (see photograph).

Kel-F and Fluorothene, too, can now be fabricated into a variety of items for plant use. Kel-F, for instance, is being molded into lock nuts for use on equipment where fuming nitric acid and other tough reagents pose severe corrosion problems. And Kel-F diaphragms are used at pressures as high as 3,000 pounds per square inch in a hydrogen peroxide feed system.

These materials are expensive—but where heat and corrosion pose severe problems, they more than pay their way.

What can computers do for your company?

From accounting offices to atomic energy installations; from chemical processing to machine design; electronic computers are getting set to take over the mathematical drudgery of industry and to provide fast, accurate answers to questions which otherwise would take weeks.

Who's using computers? An amazing array of companies:

American Airlines has a computer system for handling reservations.

Bell Telephone Laboratories not only uses computers to design equipment, but also employs many computer components in the equip-

ment itself (see *Modern Industry*, December 1952, page 42).

U. S. Steel has an unusually complete data-processing system that combines computing equipment made by nine different companies (Addressograph-Multigraph, the Bell System, Burroughs Corporation, Commercial Controls, Friden Calculating Machine, IBM, National Cash Register, Remington Rand, Western Union) into a unified system that can handle data for sales order processing, production planning and control, inventory control, invoicing, and accounts receivable—and can do it in native-language or common-language systems.

General Electric's Major Appliance Division is giving Remington Rand's "Univac" a workout on compiling sales statistics and preparing market forecasts, payroll and general cost accounting, and production planning and control.

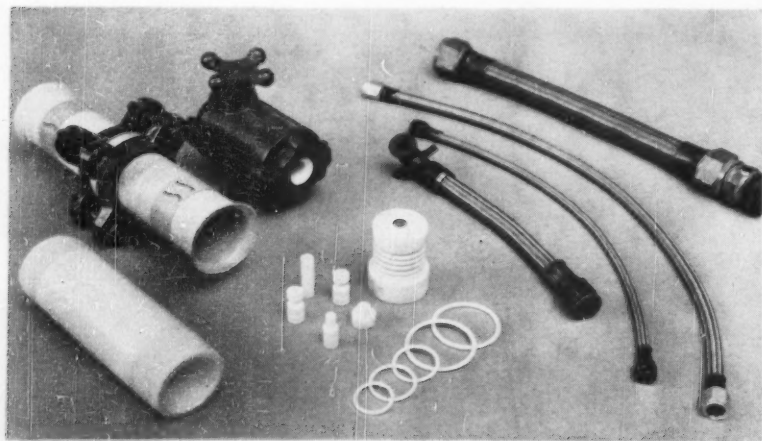
The Motor and Control Division of Westinghouse is using computers in designing multidrive systems for processing steel, aluminum, paper, and other materials.

Several banking and life insurance firms are testing, or have ordered, big computers to handle their endless parade of figures.

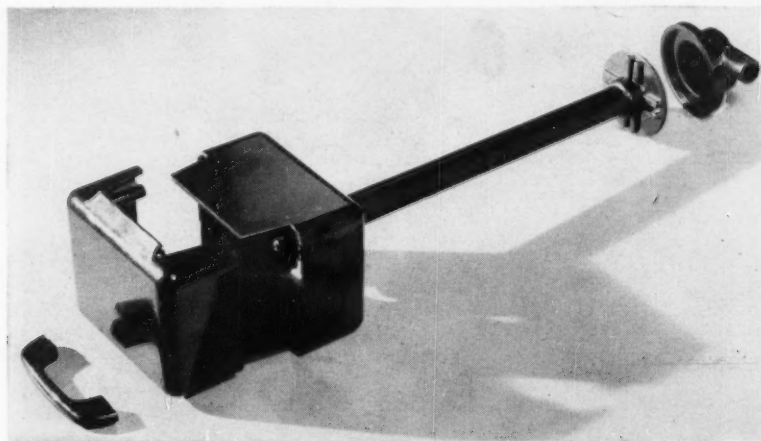
John Plain & Company, Chicago wholesale mail-order distributor of housewares and gifts, has installed an ultra-high-speed, record-keeping system designed by Engineering Research Associates Division of Remington Rand. It's expected to permit ten girls to handle—faster and more accurately—data processing that would otherwise require 150 trained tally clerks.

Arma Corporation, General Electric, and Ultrasonic Corporation are among many that are working on use of computer components for automatic machine control. One GE development is pictured on page 108; another, a record playback control system for a skin milling machine was described in December, page 125.

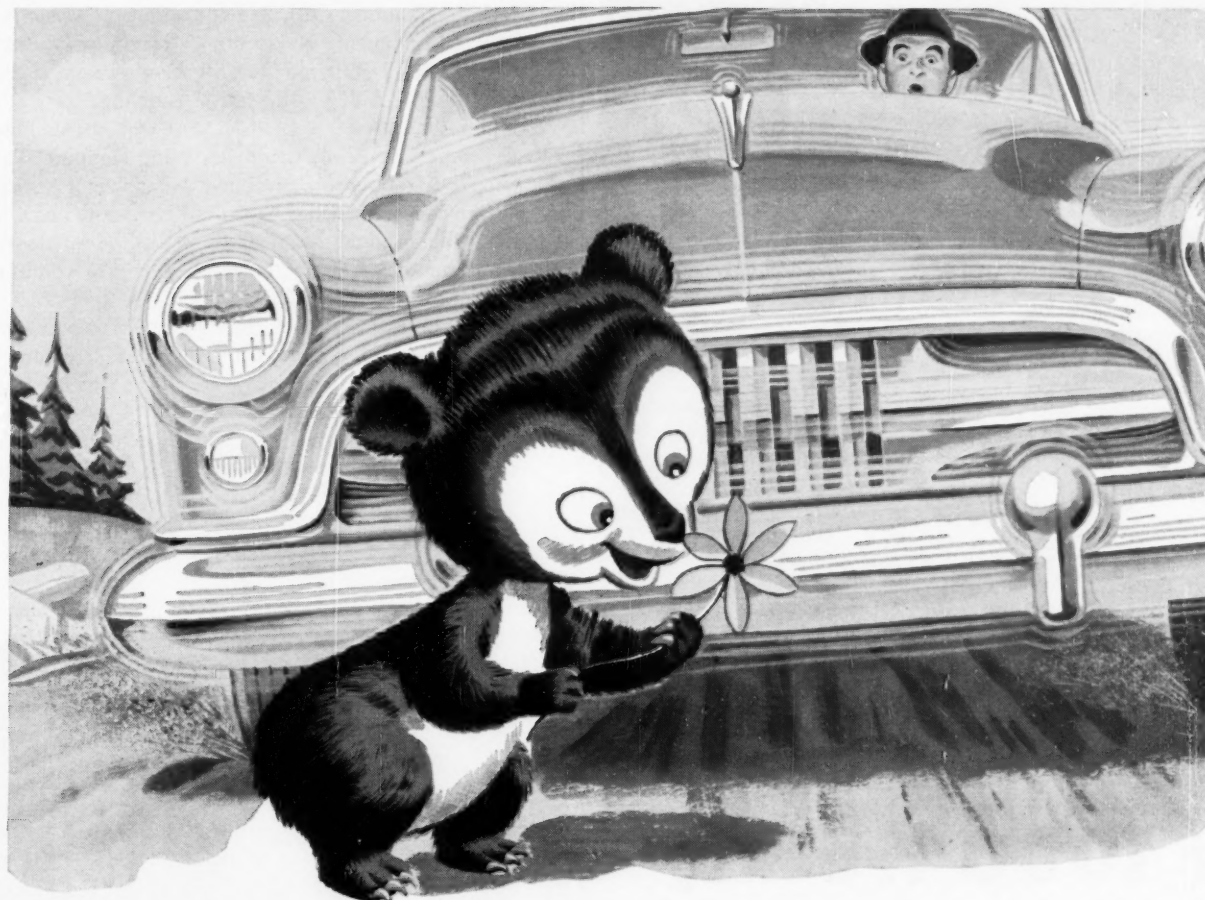
An indication of the potential usefulness of these automatic calculating machines is the number of companies now building them, or making components for them. A partial list includes Arma, Beckman Instruments, Bendix Aviation, Boeing Airplane, Burroughs, Claude Neon, Consolidated Engineering, General Electric,



Resistance to heat and corrosion makes Teflon an excellent material for plant piping (left) and aircraft hose assemblies (right) made by Resistoflex.

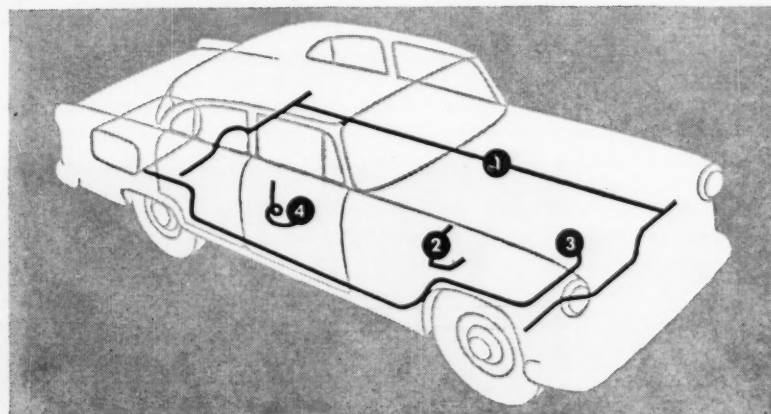


Water resistance, plus light weight, low cost, and moldability, make Durez phenolic plastic a good choice for this German-Rupp sump pump.



WILL YOUR BRAKES WORK, or will he be a bearskin rug?

There's every chance in the world your brakes will work. One good reason they will is that your car's manufacturer made the hydraulic brake lines of Bundyweld Tubing. Bundyweld won't leak, collapse from vibration, or burst from high braking pressures. And your brakes won't give out because of brake-line failure.



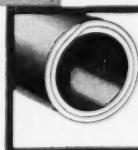
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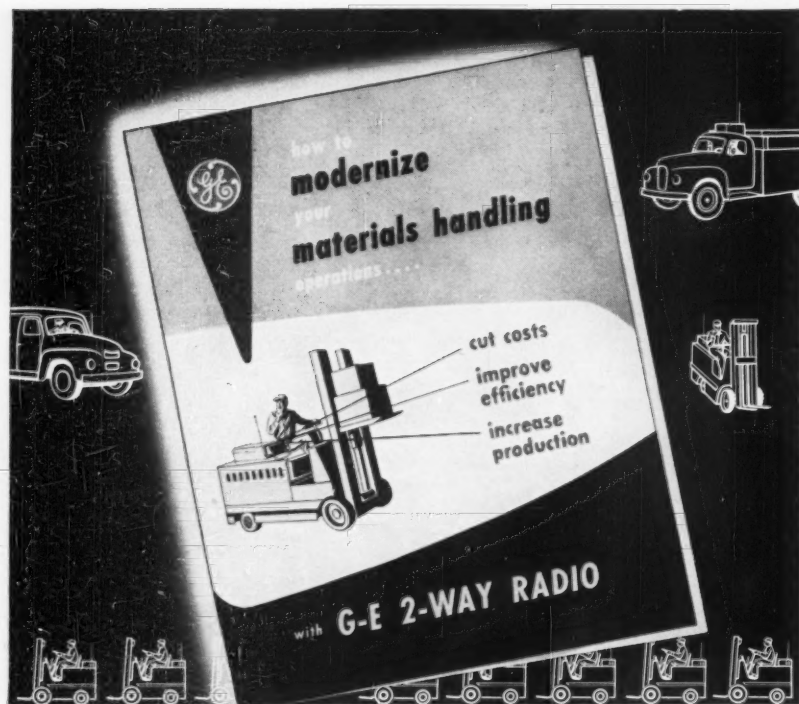
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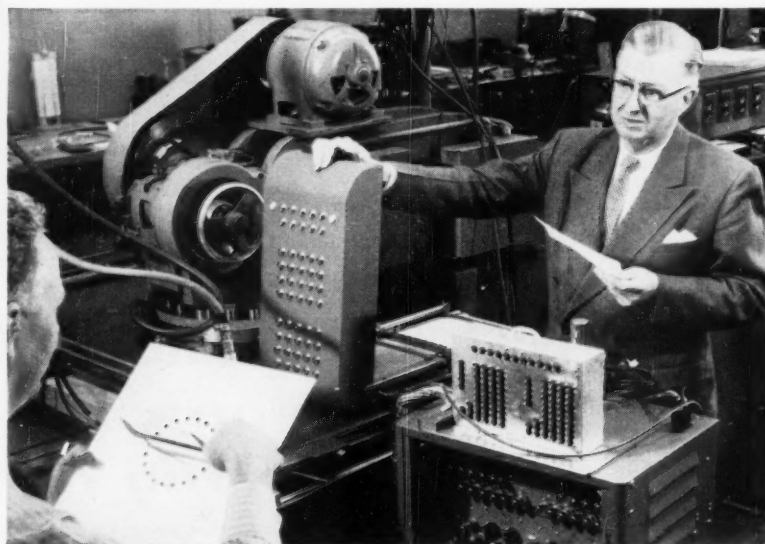
Real progress is being made in producing general-purpose computers that are smaller and less expensive than the original room-sized "electronic brains." Among the recent developments:

*A general-purpose digital computer that operates on the binary system, will add and subtract 500 numbers a second; multiply 120 a second; and divide at the rate of 85 a second. Made by Consolidated Engineering Corporation, Pasadena, Cal., it consists of a control console, a maintenance panel, input and output equipment, and a magnetic

drum "memory" unit; will handle punched cards or tape. Price of this unit, \$130,000, includes installation, training of customer personnel, and continuing assistance in problem-solving.

*A decimal-based, equation-solving computer (a digital differential analyzer), which can be operated manually or by punched cards, and can be made to simulate certain types of conditions, as well as to add, subtract, and divide, is announced by Bendix Aviation's Computer Division, 5630 Arbor Vitae, Los Angeles, Cal.

*A small analog computer for machine design and chemical process studies priced at \$7,350, and weighing a mere 150 pounds. Reeves Instrument Corporation, a subsidiary of Claude Neon, Inc., the manufacturer, says it can solve dif-



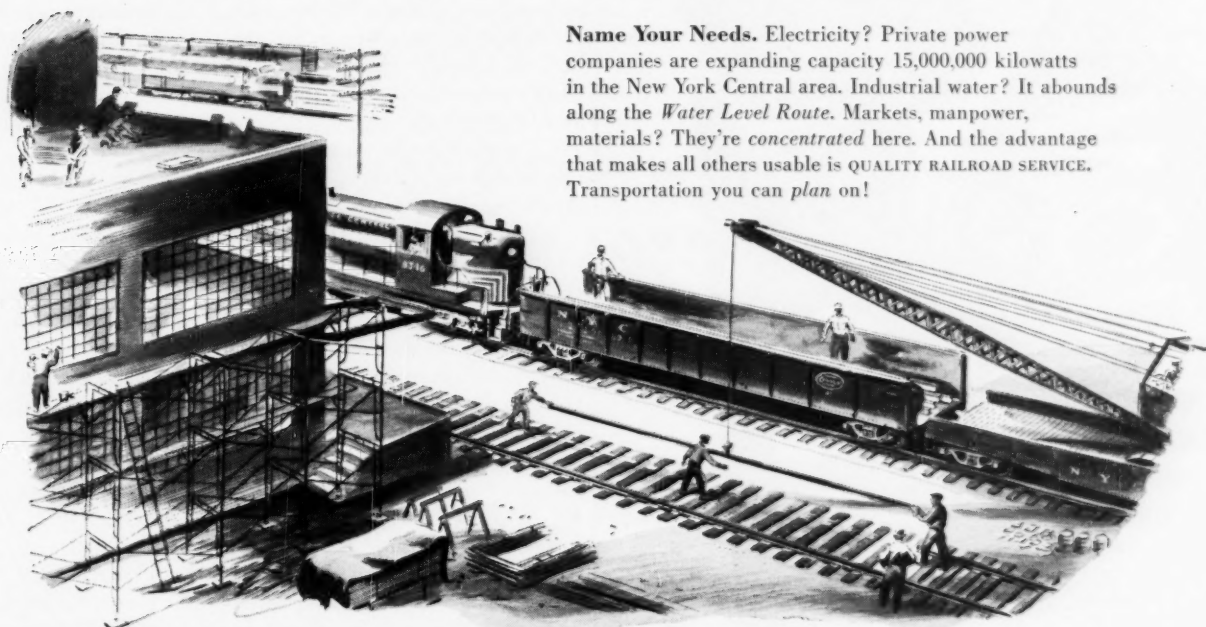
Automatic machine control is a promising application for computing equipment. Here, GE's Electronics Laboratory shows how a punch press can be operated this way, and hours of template-processing eliminated.



Military problems spurred much early research on electronic computers and are still a major source of new developments. This tremendous unit was built by Bell Telephone Laboratories to study new NIKE guided missile system.

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ferential equations with as many as twelve variables, and requiring six or more integrations.

For those who want to test the computer waters without plunging in head first, there are a number of computing services offered by such companies and organizations as: Burroughs Corporation, Consolidated Engineering, IBM, and Remington Rand; Battelle Memorial Institute and Armour Research Foundation; Cornell, Harvard, Massachusetts Institute of Technology, and Wayne University.

For those who just want to look the water over, without getting wet at all, the proceedings of many recent technical society meetings have a spate of technical papers. Among them: the last annual meeting of the American Society of Mechanical Engineers; the Western Computer Conference; a special conference on "Integrating the office for electronics," sponsored by the American Management Association, and including a number of papers on U. S. Steel's new "common-language data processing system"; and the annual meeting of the American Institute of Chemical Engineers. The Western Computer Conference and the AMA conference were held in February; the AICHE, in March. Coming up this month is

a symposium on the automatic production of electronic equipment, sponsored by Stanford Research Institute and the U. S. Air Force, to be held at the Fairmont Hotel in San Francisco, April 19 and 20.

Yours for the asking

Here are useful, interesting new publications on methods and materials. Unless otherwise noted, they are offered free of charge to executives who write on company letterhead. Address sources indicated.

Plastics: Seven new booklets give properties and applications for a variety of plastics materials.

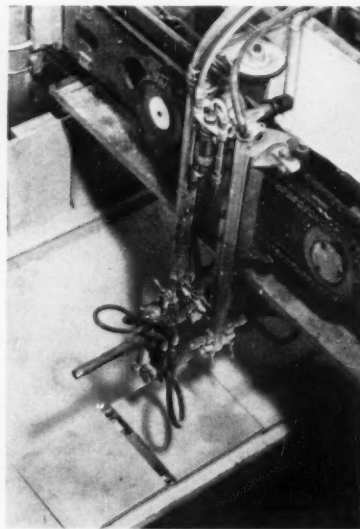
From Bakelite Company, 30 East 42nd Street, New York 17, N. Y.: *Packaging with Bakelite plastics and resins*; and *Polyester resins for reinforced plastics*.

From Cast Optics Corporation, Riverside, Conn.: *Cast thermoset plastic sheets*.

From Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.: *Celanese molding plastics*.

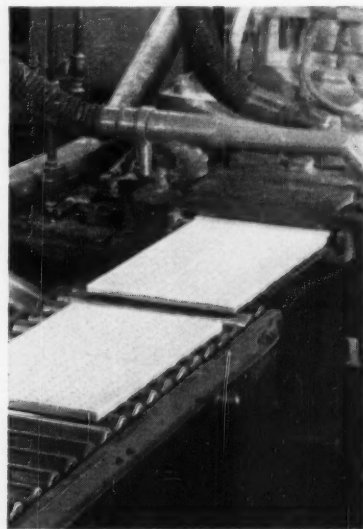
From Eastman Chemical Products, Inc., Kingsport, Tenn.: *Tenite thermoplastic*.

From Monsanto Chemical Company, Plastics Division, Springfield,



Automation for acoustics

Noise-conscious plants, offices, and homes are booming demand for acoustical tile to a point where old-fashioned production methods just can't keep up. That's why acoustical-tile makers, like many other manufacturers (see February, page 62), are turning to automatic processing and handling techniques. Pictured here are two sections of a new 240-foot production line installed by



Owens-Corning Fiberglas Corporation to make its Fiberglas acoustical products. Part of a half-million-dollar expansion and improvement program, the line incorporates machines that cut, groove, paint, and perforate, plus a variety of conveyors to keep them busy. Pictured above are: horizontal automatic spray booth (left), automatic perforating machine (right)



Wellington Sears reinforcing fabrics insure long life and top performance in rubberized industrial conveyor and power transmission belts.



For camps or circuses—boat covers or beach umbrellas—Wellington Sears has a full line of cotton ducks which are available through leading canvas goods jobbers.



Rigid control and uniformity of quality make "Oceanic" duck well suited for truck covers and other rough, all-weather applications demanding long service life.

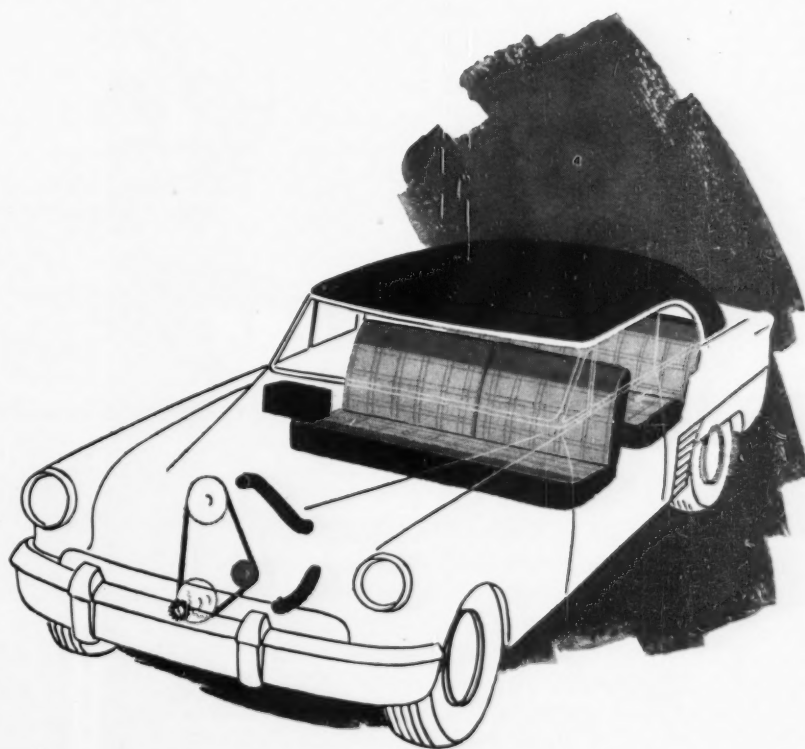
FOR FABRICS GEARED TO AUTOS —FROM TIRES TO TOPS

The extraordinary versatility of industrial fabrics and the variety of Wellington Sears output are strikingly illustrated in the automotive field.

Wellington Sears includes chafer cloth essential to durability in tires; reinforcing fabrics for laminated timing gears and for rubberized water hoses and fan belt covers; backing cloths that add strength to coated upholstery. Other fabrics are used directly for convertible tops and as linings for back shelves, luggage and glove compartments.

To meet the demands of this highly competitive and progressive field, Wellington Sears calls upon production approaches perfected through 109 years—upon the stability of sound mill operation—and upon extensive technical research and physical resources. These same factors work in your favor, whatever your industry and whatever your need—from standard constructions to special developments.

For your free copy of "Modern Textiles for Industry"—24 pages of facts on fabric development and application—please write to Wellington Sears Company, Department F-6



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Automotive	Chemical	Mining
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Wellington Sears Offers Many Varieties of These Fabrics

Cotton Duck	Chafer Fabrics
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Automobile Headlining	Airplane & Balloon Cloth
Industrial & Laundry Sheeting	Fine Combed Fabrics
Bonded (Non-Woven) Fabrics	

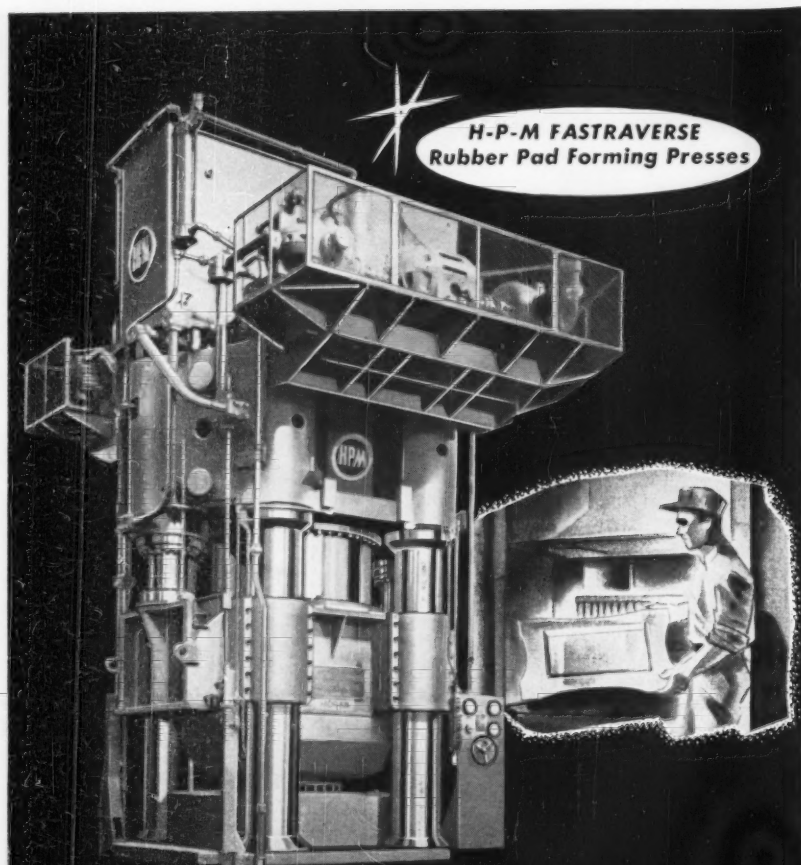
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Pratt & Whitney • Revere Copper & Brass • Serwel
Ryan • Thompson Products • U. S. Rubber • Timken

Mass.: *Opalon vinyl chloride for injection molding*; and *Chemical resistance of Monsanto plastics*.

Pigment dispersion: An unusually comprehensive 38-page, spiral-bound book, though directed primarily to paint and ink formulators, should be of interest to users of many powdered materials. *The modern approach to dispersion*, Kinetic Dispersion Corporation, 185 Botsford Place, Buffalo 16, N. Y.

Insulation: The theory of heat, requirements for weather and vapor barriers, and many phases of equipment design are covered in this 80-page, hard-bound book. It's priced at \$5. *Vapor and weather barriers for low temperature installations*, Insul-Mastic Corporation of America, Oliver Building, Pittsburgh 22, Pa.

Solenoid valves: Detailed drawings, charts, and tables tell how to buy, install, and operate solenoid valves for remote control of fluid systems. *Bulletin 500*, J. D. Gould Company, 730 East Washington Street, Indianapolis 2, Ind.

Using electricity: A great many ways in which electricity can be used to speed processing and promote employee comfort are outlined in a 32-page, pocket-sized publication. It covers applications from

heating acids and salt baths to pre-heating parts for welding, details applications in ceramics, food, glass, metalworking plastics, printing, and textile industries. *101 ways to apply electric heat*, Edwin L. Wiegand Company, 7623 Thomas Boulevard, Pittsburgh 8, Pa.

Servo pumps: How to use electrically controlled, variable-delivery, positive displacement hydraulic pumps in building remote-control systems. *Servo pump units and their application in hydraulic transmissions*, Vickers, Inc., 1400 Oakman Boulevard, Detroit 32, Mich.

Visual planning: The need for good, glareless lighting has been so clearly demonstrated that information on better ways to achieve this goal should be welcomed everywhere. To help in plant planning, the Lamp Division of General Electric, Nela Park, Cleveland 12, Ohio, has literally scores of publications, among them its regularly published "See better—Work better" bulletins. Latest in this line of useful and informative data is a publication describing the *Visual Comfort Index*—a measure of the comfort as well as the effectiveness of an existing, or planned, lighting system. The index is based on a "glare factor," determined from the size and brightness of the lights, their location, and room brightness level.



Now, they're hanging from the walls

With space at a premium in the modern household, as well as in the modern plant, it's not surprising that home appliance designers are thinking in terms of wall-mounted equipment. But an ordinary wall would have a hard time supporting an ordinary refrigerator. So, General Electric's Major Appliance Division started looking for new types of insulation, and new component ar-

rangements that might permit design of a space-saving, lightweight refrigerator. The experimental model pictured here is the result. A new type of vacuum insulation makes the sides only half-an-inch thick (as compared to three inches or more); lightweight aluminum is extensively used. It's not on the market yet—but it is a portent of things-to-come in product design.

An Amazing Timesaver

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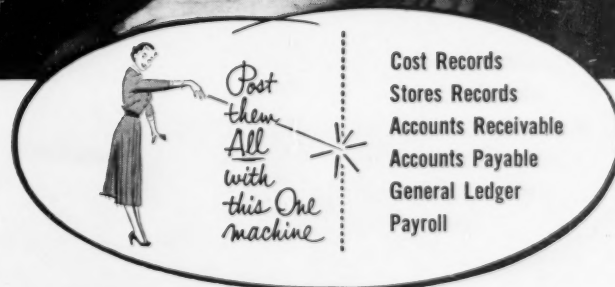
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related records
simultaneously!



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It posts related records simultaneously . . . does all the adding, subtracting and typing . . . punctuates, dates and tabulates automatically . . . speeds form insertion with its front feed carriage . . . speeds the entire posting job with its typing-computing keyboard.



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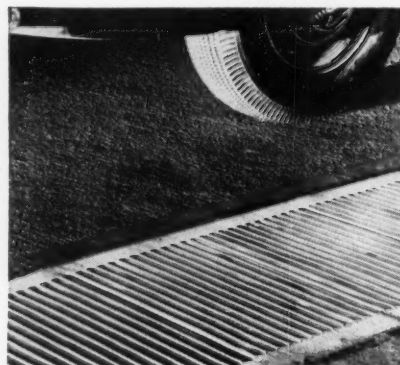
Only STEEL can do so many jobs so well



They Chew Their Way to Wealth. These teeth are capable of chewing through earth, sand and rock for thousands of feet until they reach Nature's buried treasures of gas and oil. Rock bits like this need super strength, amazing toughness, high resistance to impact, abrasion, and shock. So, many of them are made from USS Alloy Steels. And United States Steel also provides many other essentials for oil drilling, such as wire lines, drill pipe, cement, drilling rigs.



Scoop! And a big one, too . . . it can scoop out 21.5 cubic yards of earth per minute, has a boom 215 feet long! The drag lines, boom support cables and hoisting ropes on a behemoth like this must have great strength, durability, flexibility, fatigue resistance. Tiger Brand Wire Ropes, made by U. S. Steel, meet all requirements.



You Know Where You Are with this traffic lane marker. For if you veer out of your traffic lane, and your car tires roll on the corrugations of the lane separator, it actually sounds a plainly audible warning to you. These concrete lane markers that "talk back" to you are also plainly visible day or night, because they are made of Atlas White Cement, a product of U.S. Steel's Universal Atlas Cement Company.



This trade-mark is your guide to quality steel



A Man Needs a Cookie once in a while! And when cookies are kept in a tight cookie tin like this, they'll be fresh and appetizing for him. The can is steel, of course . . . made out of the same USS Tin Plate that is produced by U.S. Steel to make millions of "tin" cans every year for the protection of food, oil, paint and countless other things.

UNITED STATES STEEL

For further information on any product mentioned in this advertisement, write United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.
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 OIL WELL SUPPLY . . . TENNESSEE COAL & IRON . . . UNITED STATES STEEL PRODUCTS . . . UNITED STATES STEEL SUPPLY . . . Divisions of UNITED STATES STEEL CORPORATION, PITTSBURGH
 UNITED STATES STEEL HOMES, INC. • UNION SUPPLY COMPANY • UNITED STATES STEEL EXPORT COMPANY • UNIVERSAL ATLAS CEMENT COMPANY 4-894



BO & JOAN STEFFANSON PHOTOGRAPH

Executive BOOKSHELF

Powerful Pundit

To understand the thinking of economist Arthur F. Burns is to catch a glimpse of the probable course of government measures in the months to come. However, the writings of the Chairman of the Council of Economic Advisors have been scattered like seeds through scholarly journals and technical papers. Now, in the new volume, *The Frontiers of Economic Knowledge*, many of his essays and papers have been gathered together.

While Dr. Burns has been widely thought of as an economist's economist, the essays in this volume should in no way repel the general reader. For in prose which is limpid but never limp, he conducts us on a stimulating tour of the outposts of economics beyond which thinking fades into a haze of speculation. He emphasizes that the empirical approach of which Wesley Mitchell was the trail-blazer, is the most reliable means of converting economics into a valid science.

Included are many forthright yet

measured pronouncements on the usefulness of various government measures, the nature of recessions (whether rolling or not), forecasting, investments, and many other topics. In addition to offering insight into the thought of the President's economics mentor, the volume provides a refreshing view of the state of economics at the present time. It is a publication of the National Bureau of Economic Research, of which Dr. Burns is director of research (on leave).

Princeton University Press, Princeton, N. J., 367 pages, \$5.

Finding Markets

While executives continue to devote exemplary energy to paring production costs, the expenses of marketing account for about 59 per cent of all costs. Of course, to whittle away at marketing costs involves a lucid understanding of methods of distribution along with a systematic means for selecting the most economical.

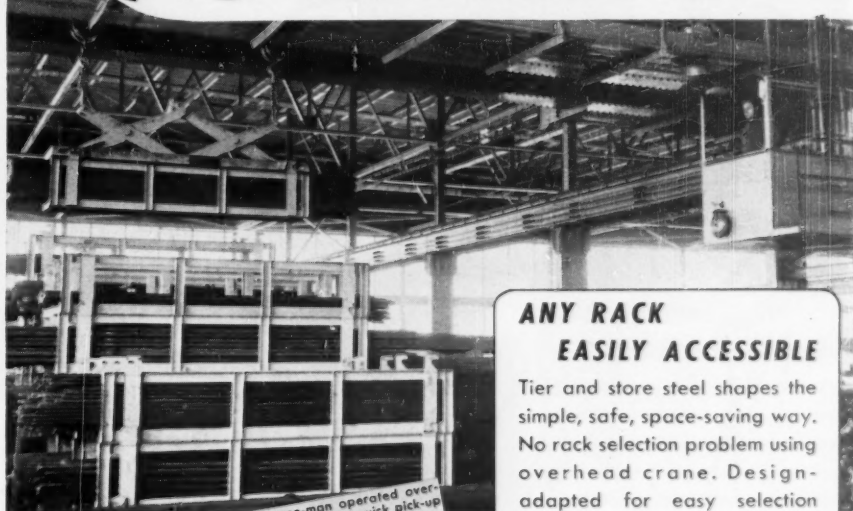
The new volume, *Marketing*

MODERN INDUSTRY

CONSULT FOR THE BEST

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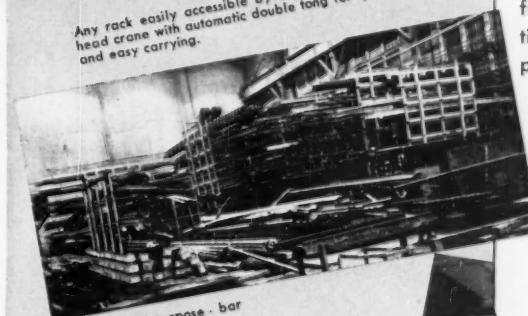
PORTABLE **Heavy Duty**
BAR RACKS



ANY RACK EASILY ACCESSIBLE

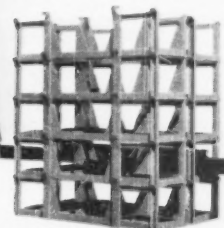
Tier and store steel shapes the simple, safe, space-saving way. No rack selection problem using overhead crane. Design-adapted for easy selection from racks without disturbing tiers. Custom-built for any capacity and stock length.

Any rack easily accessible by one-man operated overhead crane with automatic double tong for quick pick-up and easy carrying.

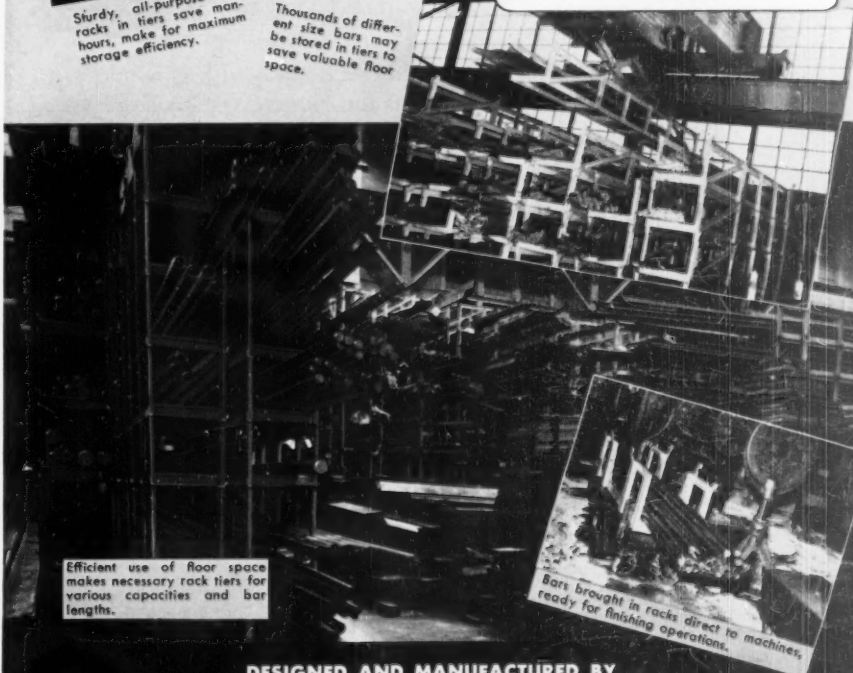


Sturdy, all-purpose bar racks in tiers save man-hours, make for maximum storage efficiency.

Thousands of different size bars may be stored in tiers to save valuable floor space.



Item
C-497



Efficient use of floor space makes necessary rack tiers for various capacities and bar lengths.

Bars brought in racks direct to machines, ready for finishing operations.

DESIGNED AND MANUFACTURED BY

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16034 FULLERTON AVE., DETROIT 27, MICH.

When Ordering Always
give "item" number; this
will help prevent error.
Write for catalog.

The front office should know about THIS!



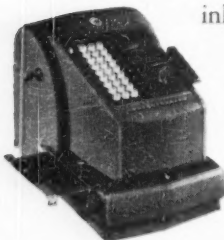
It's not a new engagement ring or the latest office gossip that's causing all the excitement.

It's a demonstration of the new Todd Disburser—the machine that dates, protects and signs checks in one fast, efficient operation.

Leave it to the girls to recognize a real advance in office equipment.

The Todd Disburser is smaller and lighter than a typewriter. It dates automatically.

It shreds amount lines into check fibres with indelible ink. It controls and counts every signature.



To get all the facts about the time-saving, money-saving Todd Disburser—mail the coupon. Take the first step toward increased safety, improved efficiency and lower overhead for your company.

THE TODD COMPANY, Inc., Dept. DR
Rochester 3, N. Y.

Please have your representative telephone me for an appointment.

Name of firm _____

City _____ Zone _____ State _____

Telephone _____

By _____

DRM-4-54

Todd
COMPANY, INC.

Todd

ROCHESTER NEW YORK

SALES OFFICES IN PRINCIPAL CITIES
DISTRIBUTORS THROUGHOUT THE WORLD

Channels, edited by Richard M. Clewett, brings together the considered writings of a score of experts and authorities on the topic of getting goods to market. Quite a departure from most marketing primers, this book presents the subject by analyzing the various channels through which pass particular goods, such as textiles, canned goods, washing machines, meat, apparel, and others.

Without slighting the historical background—the disturbing of marketing channels did much to bring on the American Revolution—the volume illumines in detail (by mentioning particular companies and regional patterns) the labyrinthine ways through which passes the nation's output.

Richard D. Irwin, New York, 518 pages, \$6.

Wooing Stockholders

While it may be somewhat unusual to-day, the struggle for the New York Central Railroad points up quite dramatically the importance of a corporation's relations with its stockholders. While some companies have taken long strides in wooing their nominal owners (newsletters, house organs, and even films have been made specifically for stockholders), many companies, particularly medium-size ones, still limit their efforts to a copy of the annual report and a rather perfunctory and sometimes peremptory annual meeting.

The importance of *Financial Public Relations for the Business Corporation* are clearly illustrated in the new volume of the same title. Author Herman S. Hettinger offers a step-by-step description of the process of turning poor stockholder relations into happy harmony and for creating cordiality with the entire financial community, so important for floating loans or issuing stocks.

He describes in detail the various methods of presenting information to the business public, with the advantages and disadvantages of each, and the various publications and other media in which to plant a story. While the emphasis in public relations has been toward the general public, this volume should help to shift attention to the corporation's owners.

Management men would do well to prepare for a possible vast change

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Quiet, fume-free electric truck power is ideal in this grocery warehouse.

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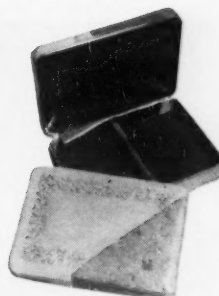
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POWER INDUSTRIAL TRUCKS
Established 1893



Thigh guards for football pants



Welder's glove cuff stiffener



Jewelry box padding



Slipper foundation padding



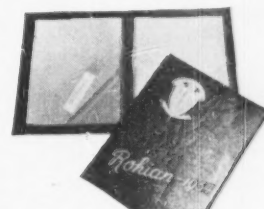
Garment interliners



Handbag body shaper



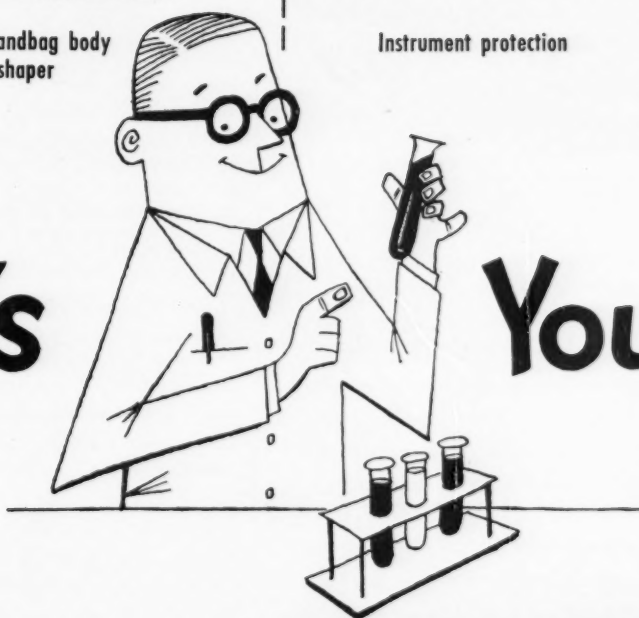
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These new fabrics are made from various fiber combinations, formed into a mat in an exclusive air-felting process and bound into uniform, homogeneous products.

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St. Paul 1, Minnesota

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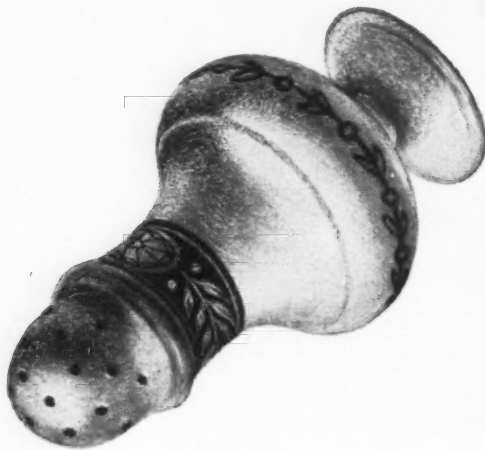
Name.....

Company.....

Address.....

City.....State.....

do you know...



how
MORTON
SALT CO.

MOVES

cartons

to
save plant
storage
space?

MORTON SALT COMPANY saved the cost of building new warehouse facilities... and eliminated a strangling "choke-point"—by modernization! High-lift Baker trucks combined with a new conveyer system now permit full use of vertical storage space. By utilizing special trucks and attachments for cartons, bags—even block salt—materials handling has been precisely geared to rate-of-production. With pallets tiered four-high, deliveries are speedier... production areas are clear... inventory is simplified. And this corrosive product in no way affects Baker performance. Materials handling can well be a short cut to lowered overhead in your plant... write today for full particulars!

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RAULANG CO.**

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CLEVELAND 2, OHIO

Baker-Lull Corporation, Subsidiary, Minneapolis
Material Handling and Construction Equipment



Baker

industrial trucks

in the behavior of many stockholders who have been apathetic or acquiescent in providing proxies, if and when closed circuit TV (increasingly important for sales meetings) is applied to stockholders' meetings, thus allowing a phenomenal growth in attendance and active interest in management affairs.

Harper & Brothers, New York, 204 pages, \$3.50.

Constructive Work

Not only economists but many people seriously interested in the construction industry will be pleased by the new publication, *The Volume of Residential Construction, 1889-1950*, by Dr. David M. Blank of Columbia University. For in this closely documented study, the author has managed to fill many of the gaps in our knowledge of residential construction by working from raw data supplied by the Bureau of Labor Statistics in co-operation with the National Bureau of Economic Research, which publishes the study.

National Bureau of Economic Research, Inc., 1891 Broadway, New York 23, N. Y., 99 pages, \$1.50.

Short Notes

● Not merely a collection of admonitions and advice, the new book, *Your Investments: How To Increase Your Capital and Income*, is a down-to-facts handbook for those interested in adding muscles to their money. The author, Dr. Leo Barnes, has cataloged the various stocks, bonds, mutual funds, and other investments which offer the investor the last full measure of devotion for his funds. He lists the stocks which provide tax-free dividends, tax-exempt bonds, bargain-stocks which sell below net working capital, and other invaluable information one would expect to glean from hours of huddling with an investment counselor. It is as richly supplied with lists of stalwart stocks as a prosperous portfolio. This large, soft-cover working manual (95 pages) can be had for \$3 from the American Research Council, 11 East 44th Street, New York 17, N. Y.

● The thorny tangle of arguments about tariffs can be more easily disentangled after having read the recent volume, *Aid, Trade, and*



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Service Award Department, Box 14
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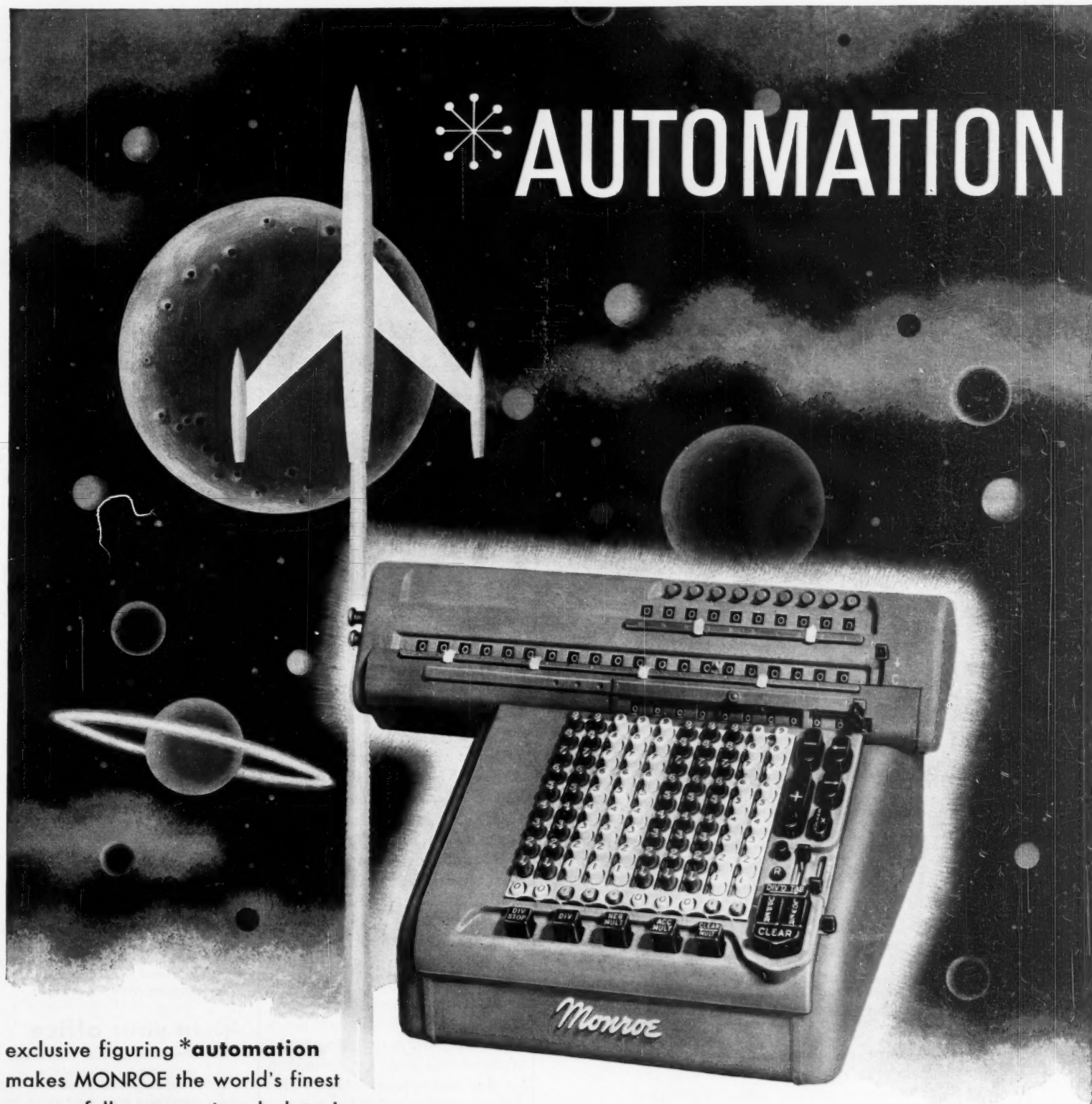
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Kindly send me full information about
Service Award Plans.

Name (Please print name and address)

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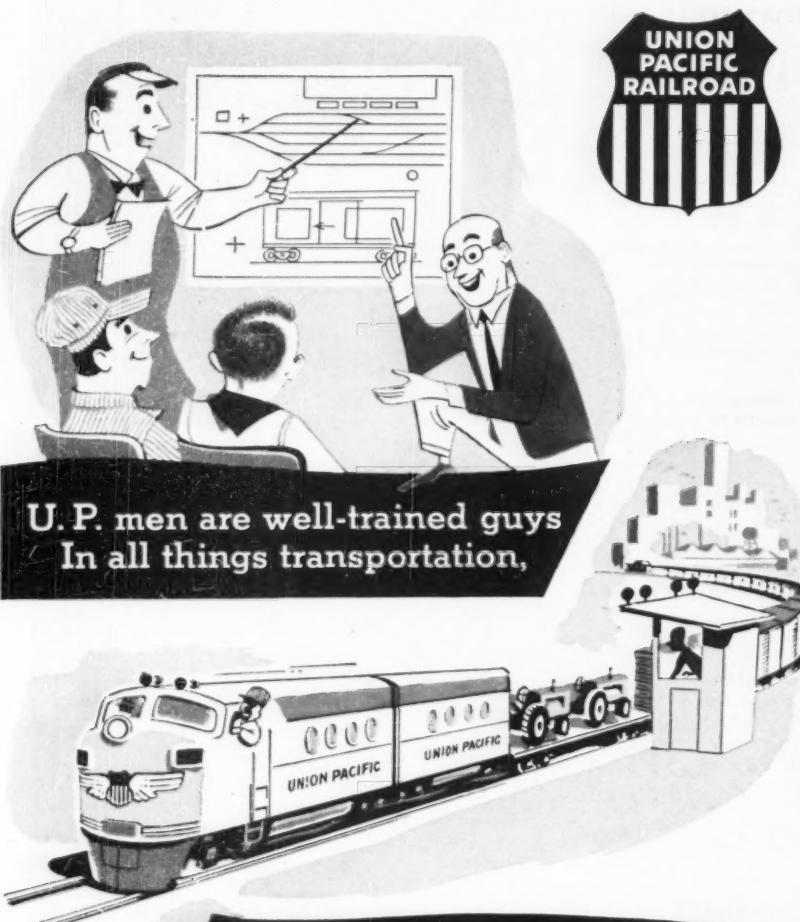


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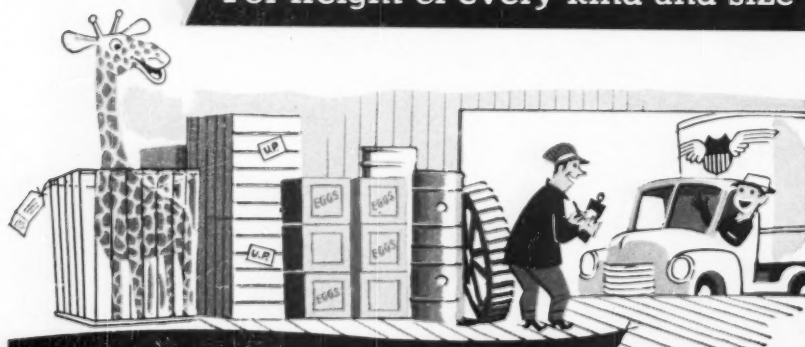
in which the machine receives the problem and never stops or needs attention in giving its instantaneous answer! Monroe Calculating Machine Company, Inc., Orange, N. J. Sales and service everywhere.

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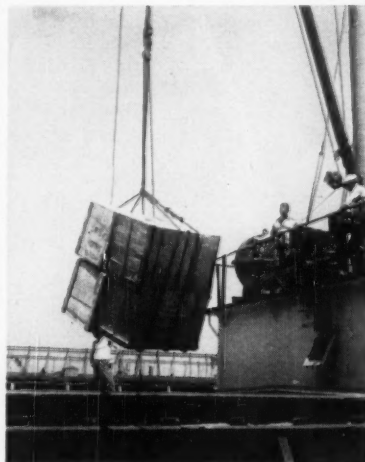
Shippers have many reasons for favoring Union Pacific service. One of these is the friendly, cooperative spirit of Union Pacific employees. This is in evidence everywhere. Doesn't it follow that such friendly cooperation means finer, more dependable service? Remember this the next time you have shipments to or from California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, Oregon, Utah, Washington or Wyoming.

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throughout the U.S.A.)

UNION PACIFIC RAILROAD

Tariffs. Edited by Clifton H. Kreps, Jr., and Juanita Morris Kreps, this little volume (202 pages) brings together dozens of stimulating articles from an entire panorama of publications probably missed by the busy executive.

This sampling of opinion and fact offers one a vivid understanding of the swirling currents of opinion behind such slogans as "Trade, Not Aid." It can be had for \$1.75 from



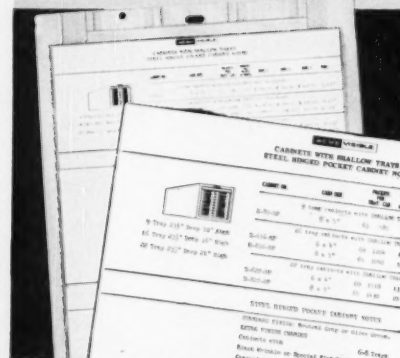
DEVANEY PHOTOGRAPH

the H. W. Wilson Company, 930 University Avenue, New York 52, N. Y.

• Executives not blessed with secretaries who measure up to the bro-midic Girl Friday will find the new book, *Success and Satisfaction in Your Office Job* highly useful as a tonic for the distaff staff. For in this stimulating volume, the authors, Ester R. Becker and Richard L. Lawrence, have collected an array of anecdotes and admonitions to point the way to success for the six million women (secretaries and assorted office helpers) who do the housekeeping in American business. Much of the *malaise* which sometimes hangs heavy over long banks of active files could be diminished by this easy-to-read volume. This 160-page book is published by Harper & Brothers, New York, for \$2.50.

• A spring tonic for salesmen is found between the covers of the new 227-page volume, *The Salesman's Complete Ideas Handbook*. Author Emille Raux demonstrates how to sell both the goods and one's personality. Published by Prentice-Hall, Inc., 70 Fifth Ave., New York 11, it sells for \$4.95.

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Over a Billion Dollars

Paid to Policyholders and Beneficiaries—the Largest Sum in the History of Insurance

More benefits to more people were paid by Metropolitan in 1953 than have ever been paid by any Life insurance company in a single year. Payments to policyholders and beneficiaries amounted to \$1,029,000,000.

All in all, 1953 was an outstanding year in your Company's operations. In most respects, it was the best in Metropolitan's 86-year history. In the light of the high level of economic activity in the United States and Canada, and the ability of our Field organization, this is not surprising. We can take pride in reaching new heights in service to the peoples of our two countries.

National Economic Conditions

In retrospect, 1953 was a year of transition. Uppermost in the minds of all, but particularly those with sons of military age, was the cessation of hostilities in Korea. Nevertheless, we fully realize that our goal of a world at peace is far from won, and it is incumbent upon us to continue to remain militarily strong. With Korea no longer an active military theatre, we can convert some of our industrial facilities from production of materiel for human destruction to the satisfying of human wants.

On the domestic front, a number of influences have been at work to materially reduce the inflationary forces, which for so many years have been driving the cost of living to ever greater heights. The curbing of war produc-

tion, a temporary catching up with civilian demand in some areas, a determined effort to achieve a balanced budget, and a return to more orthodox management of public debt and fiscal affairs—all have played their part.

We in the Life insurance business are particularly conscious of the effects of inflation, which bear so heavily on the thrifty and those dependent on fixed incomes. All efforts to control this danger should receive our fullest support.

In the year ahead, business will be more competitive, but this is no cause for concern. Competition provides the same goods at lower prices, or better goods and services at the same price. The United States has grown to its present outstanding position on the basis of competition in a free market.

We are passing through a readjustment period, and have been for a number of months, but fundamentally this country is strong. We have, far and away, the greatest productive capacity of any country in the world. More than this, the people of this country and Canada have not lost their fundamental traits of thrift, initiative, and faith in God. Our two countries will go to much greater heights of prosperity in a peacetime economy than ever could be achieved in the midst of war.

Metropolitan Highlights of 1953

During 1953, Metropolitan's gain in Life insurance in force was substantially larger than

was ever previously recorded by Metropolitan or any other Life insurance company in any one year. Metropolitan's Life insurance in force, at the end of 1953, totalled more than \$56 billion. The number of people covered under all forms of Metropolitan policies reached a record high of over 37 million.

The assets of the Company, which help guarantee the fulfillment of its obligations, increased by \$719,000,000 and reached \$12,312,000,000 at the close of 1953.

Dividends to policyholders during the year reached an all-time high of \$214,829,000. The interest rate earned by Metropolitan investments, after deducting investment expenses, increased to 3.31% (compared with 3.21% for 1952), and stood at 3.09% after the Federal Income Tax. Mortality continued at a low rate. Expenses increased moderately, largely because of the increased volume of business.

In citing the 1953 accomplishments, we wish to pay particular tribute to the 48,000 men and women in the Metropolitan organization who have made these results possible.

J. M. Cher
President

For a more complete story of Metropolitan's operations during 1953, mail the coupon below.

METROPOLITAN ASSETS AND LIABILITIES—DECEMBER 31, 1953

(In accordance with the Annual Statement filed with the Insurance Department of the State of New York.)

ASSETS WHICH ASSURE FULFILLMENT OF OBLIGATIONS

Bonds	\$8,437,418,065.78
Industrial and Commercial	\$4,172,794,376.37
U. S. and Canadian Government	1,890,206,554.53
Provincial and Municipal	65,021,712.72
Public Utility	1,642,459,573.13
Railroad	666,935,849.03
Stocks (All but \$16,476,038.61 are preferred or guaranteed.)	172,718,060.11
Mortgage Loans on Real Estate	2,336,397,134.83
On urban properties	\$2,157,837,445.45
On farms	178,559,689.38
Real Estate (including housing projects and properties for Company use)	443,446,660.78
Policy Loans (made to policyholders on the security of their policies)	488,853,000.73
Cash and Bank Deposits	156,401,445.73
Other Assets (chiefly premiums and interest outstanding)	276,698,999.17
TOTAL ASSETS TO MEET OBLIGATIONS	\$12,311,933,367.13

OBLIGATIONS TO POLICYHOLDERS, BENEFICIARIES, AND OTHERS

Statutory Policy Reserves	\$10,438,536,909.00
Policy Proceeds and Dividends Left with Company at Interest	689,329,021.00
Set aside for Dividends to Policyholders (payable in 1954)	203,618,054.00
Policy Claims Currently Outstanding	60,640,032.54
Other Policy Obligations	93,674,723.78
Taxes Accrued (payable in 1954)	51,633,831.58
Security Valuation Reserve (prescribed by the National Association of Insurance Commissioners)	25,845,145.00
Contingency Reserve for Mortgage Loans	5,050,000.00
All Other Obligations	28,213,270.94
TOTAL OBLIGATIONS	\$11,596,540,987.84
Special Surplus Funds	\$110,683,000.00
Unassigned Surplus	604,709,379.29
TOTAL SURPLUS FUNDS	715,392,379.29
TOTAL OBLIGATIONS AND SURPLUS FUNDS	\$12,311,933,367.13

NOTE—Assets amounting to \$586,852,295.40 are deposited with various public officials under the requirements of law or regulatory authority.

Metropolitan Life Insurance Company

(A MUTUAL COMPANY)



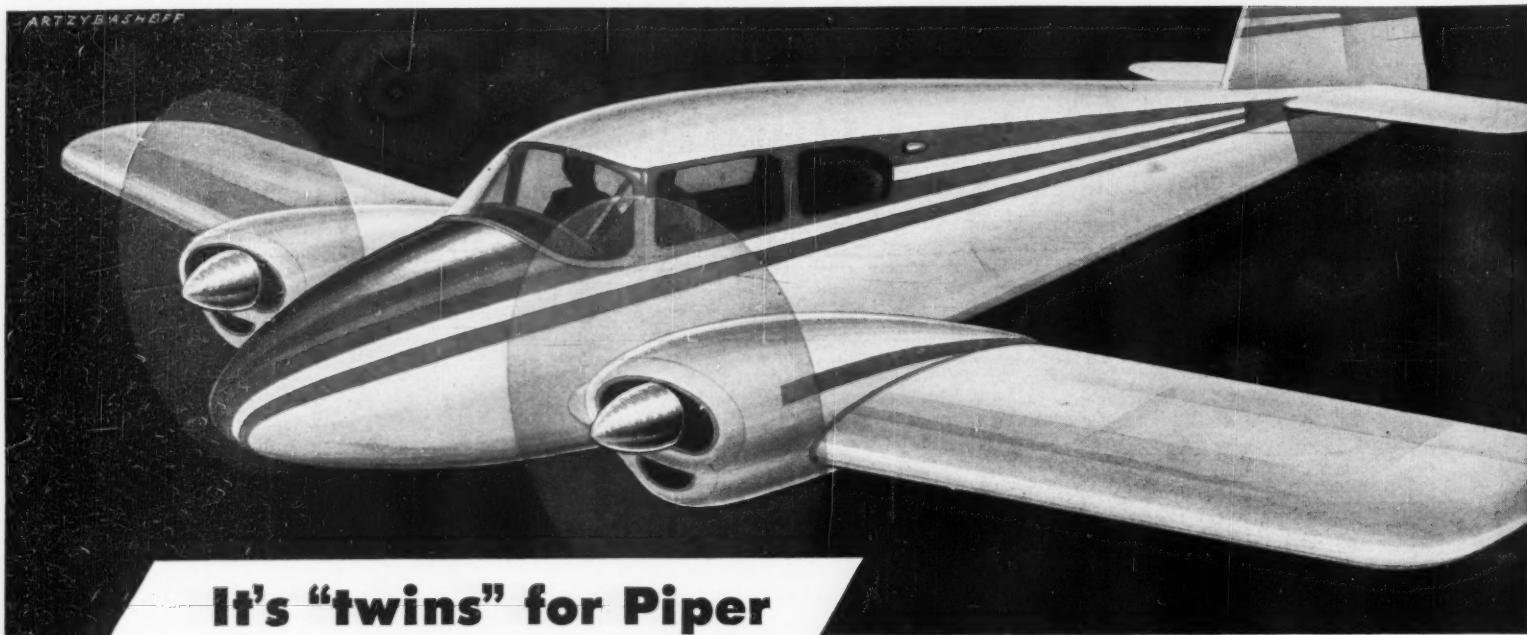
HOME OFFICE: 1 MADISON AVENUE, NEW YORK 10, N. Y.
PACIFIC COAST HEAD OFFICE: 600 STOCKTON STREET, SAN FRANCISCO 20, CAL.
CANADIAN HEAD OFFICE: 180 WELLINGTON ST., OTTAWA, ONTARIO, CANADA

METROPOLITAN LIFE INSURANCE CO.
1 Madison Avenue, New York 10, N. Y.

Gentlemen:

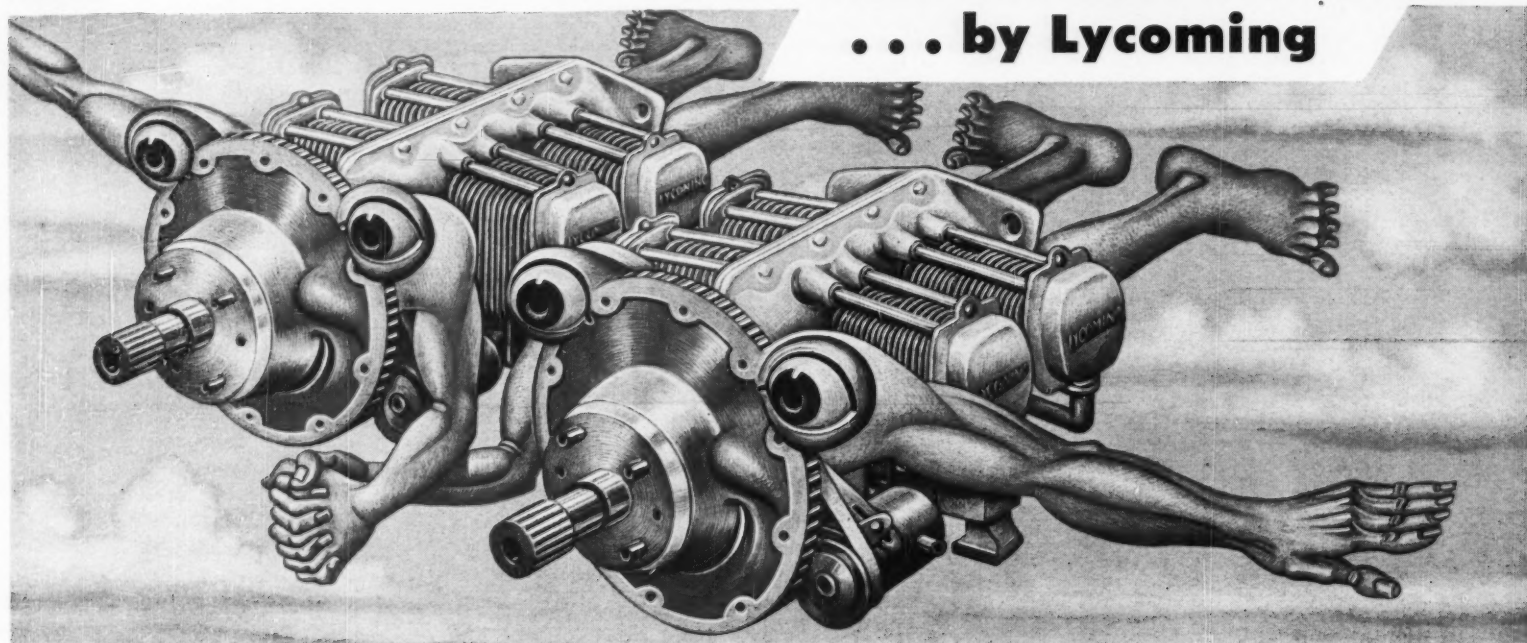
Please send me, without charge, a copy of your Annual Report to Policyholders for 1953.

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It's "twins" for Piper

... by Lycoming



This is the Piper Apache . . . the all-new executive plane that brings new economy to the twin-engine field while maintaining high standards of safety and dependability.

It is powered by two proven Lycoming 150-h.p. air-cooled engines designed especially for the Apache. These power plants provide an improved horsepower-weight ratio, new compactness . . . and are so powerful that the Apache can safely fly and land with a full load *on one engine alone.*

We suggest a test flight in the Piper Apache for a new experience in air travel.



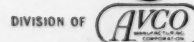
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Castings
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Manufacturing plants in Stratford, Conn., and Williamsport, Pa.



BLOOM PHOTOGRAPH FROM MONKMEYER

Business Failures . . .

Business failures continued to rise in February, reaching 926, the largest number in any month in the post-war period. While casualties rose 34 per cent above a year ago and were the highest for any February since 1941, they remained 23 per cent below the pre-war level of 1,202 in the similar month of 1939.

Concerns failed at the rate of 40 for each 10,000 businesses listed in the DUN & BRADSTREET *Reference Book*, according to DUN's FAILURE INDEX which extends monthly mortality to an annual basis and adjusts for seasonal variation. This casualty rate compared with 30 a year ago, 50 in 1942, and 68 in 1939.

The liabilities of failures increased more sharply than their number. Rebounding from the January decline, they climbed to \$47,774,000, some 75 per cent above last year and the highest volume for any month since April, 1933. If

adjustments are made for changes in the value of the dollar, however, this upswing is modified considerably.

Failures involving liabilities above \$5,000 rose both from the preceding month and from February of last year. Medium-sized concerns accounted principally for the heavier mortality. The most notable upturn occurred among casualties involving liabilities of \$25,000 to \$100,000; these reached a twenty-year peak. During February, 78 businesses succumbed with liabilities larger than \$100,000.

There was an increase in failures in all industry and trade groups except retailing between January and February. The manufacturing increase centered largely in the machinery industry where twice as many concerns failed as in the previous month. In wholesale trade, the most marked change was an upturn in casualties

WHY BUSINESSES FAIL

Compiled by Griffith M. Jones

Assistant to the President, DUN & BRADSTREET, INC.

Classification of Causes of BUSINESS FAILURES—All Lines of Business, 1953

Based on Opinions of Informed Creditors and Information in Dun & Bradstreet's Credit Reports

MFG.	WHOL.	RET.	CONST.	COM. SERV.	TOTAL	UNDERLYING CAUSES		APPARENT CAUSES		MFG.	WHOL.	RET.	CONST.	COM. SERV.	TOTAL
3.4	5.9	5.6	4.7	2.6	4.9	NEGLECT:	<i>Due to</i>	{ Bad Habits	0.8	2.0	1.4	2.2	1.2	1.4	
								{ Poor Health	2.3	3.2	3.1	2.0	0.9	2.7	
								{ Marital Difficulties	0.2	0.6	0.5	0.3	0.2	0.4	
								{ Other	0.1	0.1	0.6	0.2	0.3	0.4	
3.6	6.2	3.2	2.5	2.6	3.5	FRAUD:	<i>On the part of the principals, reflected by</i>	{ Misleading Name	0.1	0.1	0.1	0.1	—	0.1	
								{ False Financial Statement	0.3	0.6	0.6	0.2	0.3	0.5	
								{ Premeditated Overbuy	0.1	0.6	0.2	—	—	0.2	
								{ Irregular Disposal of Assets	2.9	4.8	2.1	2.0	2.0	2.5	
								{ Other	0.2	0.1	0.2	0.2	0.3	0.2	
8.2	9.4	14.0	8.1	6.4	11.0	LACK OF EXPERIENCE IN THE LINE	<i>Evidenced by inability to avoid conditions which resulted in</i>	{ Inadequate Sales	52.7	48.8	52.4	29.7	55.5	49.7	
9.6	10.1	11.9	14.8	9.1	11.3	LACK OF MANAGERIAL EXPERIENCE		{ Heavy Operating Expenses	7.1	4.8	3.6	22.8	6.3	6.9	
15.2	15.8	16.7	17.4	22.2	16.8	UNBALANCED EXPERIENCE*		{ Receivables Difficulties	11.3	13.0	5.6	13.7	3.7	8.4	
57.9	50.7	46.6	49.3	53.8	50.3	INCOMPETENCE		{ Inventory Difficulties	10.1	13.6	12.0	2.1	2.4	9.9	
								{ Excessive Fixed Assets	12.2	5.0	8.4	4.9	20.2	9.3	
								{ Poor Location	0.6	1.1	4.6	0.6	1.9	2.7	
								{ Competitive Weakness	12.2	13.7	17.0	19.8	12.1	15.6	
								{ Other	5.3	5.0	3.2	7.3	3.4	4.3	
1.6	1.7	1.2	1.0	1.9	1.3	DISASTER:	<i>Some of these occurrences could have been provided against through insurance</i>	{ Fire	0.8	0.4	0.5	—	0.4	0.5	
								{ Flood	—	0.1	0.1	—	0.2	0.1	
								{ Burglary	0.1	0.2	0.2	—	0.2	0.1	
								{ Employees' Fraud	0.1	0.1	0.0	0.2	0.4	0.1	
								{ Strike	0.3	—	0.0	0.5	0.2	0.1	
								{ Other	0.3	0.9	0.4	0.3	0.5	0.4	
—	—	—	—	—	—	WAR MOBILIZATION		{ Shortage of Manpower	—	—	—	—	—	—	
								{ Shortage of Material	—	—	—	—	—	—	
0.5	0.2	0.8	2.2	1.4	0.9	REASON UNKNOWN		<i>Because some failures are attributed to a combination of apparent causes, the totals of these columns exceed the totals of the corresponding columns on the left.</i>							The figure 0.0 indicates a percentage less than 0.05
100.0	100.0	100.0	100.0	100.0	100.0	TOTAL									
1,857	933	4,381	1,024	667	8,862	NUMBER OF FAILURES		PER CENT OF TOTAL FAILURES	21.0	10.5	49.4	11.6	7.5	100.0	
310,502	191,855	1,517,167	†	†	2,524,405	ESTIMATED NO. OF LISTED NAMES IN EACH GROUP†		PER CENT OF TOTAL LISTED NAMES	12.3	7.6	60.1	†	†	100.0	
\$158,854	\$52,199	\$117,299	\$43,327	\$22,474	\$394,153	CURRENT LIABILITIES IN THOUSANDS		PER CENT OF TOTAL CURRENT LIABILITIES	40.3	13.2	29.8	11.0	5.7	100.0	
\$ 85,543	\$55,947	\$ 26,774	\$42,312	\$33,694	\$ 44,477	AVERAGE LIABILITIES PER FAILURE		FAILURE RATE FOR EACH GROUP**	59.8	48.6	28.9	†	†	33.2	

*Experience not well rounded in sales, finance, purchasing, and production on the part of an individual in case of a proprietorship, or of two or more partners or officers constituting a management unit.

**Annual rate of failures per 10,000 listed names.

†The number of names in each group is an estimate, but the total number of names was obtained by an actual count of the names, excluding branches, listed in the Reference Book at the end of 1953. The names in the Reference Book include only a limited percentage of the total service and construction enterprises; therefore, estimates of the number of names and failure rates for these are omitted.



MAN IN A JAM

... over routine correspondence

So you don't think a simple thing like routine letters can get you all balled up? Then read this case. Joe's department wrote letters. Lots of them. Welcome letters to new customers. Acknowledgment letters for orders. Pep-up letters to salesmen and dealers. Answers to complaints, plus dozens of other types that are so necessary in business. What's his trouble?

He can't keep up. His department is constantly two to three weeks behind. Can't push his typists. They're working top speed now. Besides they're human, and when pushed they make more mistakes. Extra help? Nope. Can't afford it. Processed or printed letters won't work either. Joe's company learned that each piece of correspondence must have that personal touch.

Is there any way out? Yes, sir. Automatic typing... an Auto-typist unit that can type pre-composed letters the same way a typist would, only $2\frac{1}{2}$ times faster and without error. Manual insertions can be made in any part of the letter. There are models for large or small offices which pay for themselves in weeks. If you have a problem similar to Joe's, or wish to know how you can economize on letter typing, why not get the facts on Auto-typist. No obligation.



Auto-typist

AMERICAN AUTOMATIC
TYPEWRITER COMPANY
Dept. 44

614 Carpenter Street, Chicago 22, Illinois
Gentlemen: Please send me your book "How to Use the Auto-typist."

Name

Company

Address

City Zone State

among lumber and building materials dealers. General builders contributed primarily to the heavier construction mortality, while transportation concerns were responsible for the February rise in commercial service failures. The contrasting decline in failures in retail trade prevailed in all lines except three. Failures increased among eating and drinking places and automotive dealers, while they were unchanged from the preceding month among drug stores.

Businesses in all five major functions failed more frequently this year than in the similar month a year ago. Manufacturing casualties climbed 57 per cent to reach the highest level since January 1950 when a post-war peak was established. Among individual industries, the uptrend from 1953 was sharpest in iron and steel, machinery, and apparel manufacturing. Commercial service mortality was half again as heavy as in February of last year, due largely to increases in transportation and business and repair services.

Some 29 per cent more retailers succumbed than a year ago; notable rises occurred in the automotive line, eating and drinking places, and apparel stores. Construction failures rose 27 per cent from the 1953 level; they attained a record high. Wholesaling showed the least change from last year; food distributors' casualties edged up slightly from the previous February. In three of the seven wholesale lines, the first two months' toll was unchanged from 1953.

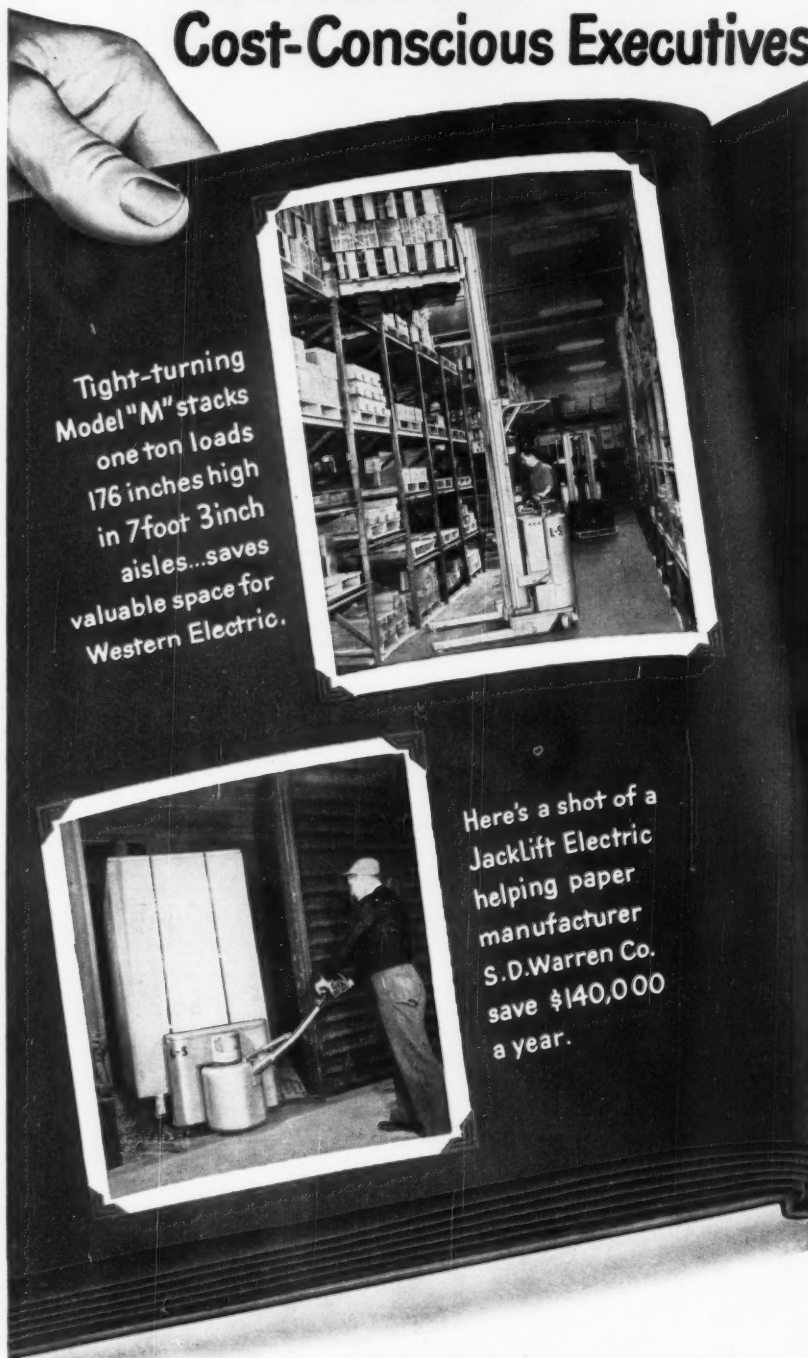
Smaller failures continued to predominate in some lines. For the first two months of 1954, the number of failures in wholesale trade was 17 per cent above a year ago,

THE FAILURE RECORD

	February 1954	January 1954	February 1953	P.C. Chg.†
DUN'S FAILURE INDEX*				
Unadjusted.....	47.5	39.4	35.6	+35
Adjusted, seasonally.....	46.5	36.8	30.4	+35
NUMBER OF FAILURES	926	867	691	+34
NUMBER BY SIZE OF DEBT				
Under \$5,000.....	119	134	124	-4
\$5,000-\$25,000.....	458	427	349	+31
\$25,000-\$100,000.....	271	249	159	+70
\$100,000 and over.....	78	57	59	+32
NUMBER BY INDUSTRY GROUPS				
Manufacturing.....	207	192	132	+57
Wholesale Trade.....	87	79	76	+14
Retail Trade.....	449	450	348	+29
Construction.....	109	86	86	+27
Commercial Serv.....	74	60	49	+51
(LIABILITIES in thousands)				
CURRENT.....	\$47,774	\$29,592	\$27,273	+75
TOTAL.....	47,909	29,906	27,525	+74

*Apparent annual failures per 10,000 listed enterprises, formerly called Dun's INSOLVENCY INDEX.
†Per cent change, February 1954 from February 1953.

Idea Album for Cost-Conscious Executives



Tight-turning
Model "M" stacks
one ton loads
176 inches high
in 7 foot 3 inch
aisles...saves
valuable space for
Western Electric.

Here's a shot of a
Jacklift Electric
helping paper
manufacturer
S.D. Warren Co.
save \$140,000
a year.

Learn what Lewis-Shepard Master Line Trucks can do to cut your materials handling costs. Write direct or call your local L-S Representative. See "Trucks, Industrial", Yellow Pages of your Phone Book. Lewis-Shepard Products, Inc., 109-4 Walnut Street, Watertown 72, Mass.

These are only two of the hundreds of successful Electric Truck applications Lewis-Shepard engineers have pasted into their album. More evidence of the dollar-saving dependability of L-S Master Line Trucks is in the number of users who continue to reorder.

For instance, here are a few of the "blue-chip" companies* who have recently re-ordered L-S Electric Trucks.

Food Processing Co.	50 L-S in use—reordered 12
Glass Mfg. Co.	22 L-S in use—reordered 9
Electrical Mach. Co.	40 L-S in use—reordered 15
Automotive Co.	45 L-S in use—reordered 5
Paper Mfg. Co.	54 L-S in use—reordered 3

*Names on request



LEWIS-SHEPARD
The Most Complete Line of Materials Handling Trucks

contrasting with the 1 per cent rise in liabilities. In retail trade, the rate of increase in liabilities, at 19 per cent, was noticeably smaller than the rise in failures, at 32 per cent. Among eating and drinking places, failures in the first two months of 1954 were 26 per cent above a year ago, while liabilities declined 20 per cent.

Although the two-month toll in commercial service was 52 per cent above a year ago, liabilities were

up 28 per cent. The rates of increase in construction failures and liabilities were almost identical.

In manufacturing as a whole, the two months' liabilities increased at a rate almost twice that in the number of failures; manufacturing casualties were 52 per cent more numerous than a year ago and liabilities were up 96 per cent.

Within the manufacturing group, however, there were diverse trends. In chemicals and allied products,

FAILURES BY DIVISIONS OF INDUSTRY (Current liabilities in millions of dollars)	Number		Liabilities	
	1954	1953	1954	1953
MINING, MANUFACTURING...	399	262	34.5	17.6
Mining—Coal, Oil, Miscellaneous...	12	9	1.1	0.4
Food and Kindred Products...	35	30	3.3	2.3
Textile Products, Apparel...	103	59	4.7	2.4
Lumber, Lumber Products...	49	38	2.3	2.1
Paper, Printing, Publishing...	26	13	0.9	0.7
Chemicals, Allied Products...	14	11	0.7	2.6
Leather, Leather Products...	18	16	1.4	1.9
Stone, Clay, Glass Products...	7	6	0.4	0.3
Iron, Steel, and Products...	22	12	2.6	2.4
Machinery...	39	21	11.7	1.4
Transportation Equipment...	8	4	1.5	0.1
Miscellaneous...	66	43	3.8	0.9
WHOLESALE TRADE...	166	142	7.8	7.7
Food and Farm Products...	45	38	1.3	1.6
Apparel...	7	5	0.1	0.2
Dry Goods...	7	7	0.4	0.4
Lumber, Building Materials...	16	16	1.1	3.1
Hardware...	7	4	0.3	0.1
Chemicals and Drugs...	6	6	0.3	0.2
Motor Vehicles, Equipment...	78	66	4.3	2.2
RETAIL TRADE...	899	682	20.4	17.1
Food and Liquor...	137	129	1.8	1.7

General Merchandise...	31	31	0.6	0.9
Apparel and Accessories...	157	114	3.0	2.5
Furniture, Furnishings...	154	108	5.0	3.7
Lumber, Building Materials...				
Hardware...	42	29	1.2	1.0
Automotive Group...	106	56	3.0	1.5
Eating, Drinking Places...	156	124	3.3	4.1
Drug Stores...	20	17	0.5	0.6
Miscellaneous...	96	74	2.1	1.3
CONSTRUCTION...	195	164	7.2	6.1
General Building Contractors...	63	65	3.0	2.6
Building Sub-contractors...	118	89	3.2	2.4
Other Contractors...	14	10	1.0	1.1
COMMERCIAL SERVICE...	134	88	7.5	2.0
Air and Highway Transportation...	46	30	4.4	1.0
Miscellaneous Public Services...	4	4	0.2	0.1
Hotels...	4	2	0.5	0.1
Cleaning, Dyeing, Repairs...	19	13	0.3	0.1
Laundries...	2	3	0.0	0.1
Undertakers...	—	—	—	—
Other Personal Services...	7	4	0.1	0.1
Business, Repair Service...	52	32	2.0	0.7
TOTAL UNITED STATES...	1,793	1,338	77.4	50.6

Liabilities do not necessarily add to totals because of rounding; the figure 0.0 indicates liabilities of less than \$100,000.

1948



1950



1954



50,000 FIRMS SPECIFY SPEED SWEEP



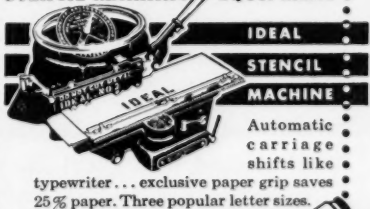
Sweeps faster, cleaner,
Outlasts Ordinary Brushes 3 to 1!

WRITE FOR STYLES, SIZES AND PRICES TODAY

Milwaukee Dustless Brush Co.
530 N. 22ND ST., MILWAUKEE 3, WIS.



with **IDEAL**
STENCIL MARKING EQUIPMENT



HANDY A FOUNTAIN
STENCIL BRUSH

Natural grip fits hand, lessens fatigue. Push-button ink control... replaceable tip.
PLUS complete line of stencil inks and stencil board.

IDEAL STENCIL MACHINE CO.
109 Iowa Ave., Belleville, Ill.

Write for FREE
"Shipping Guide."

Want to paint a brighter sales picture?

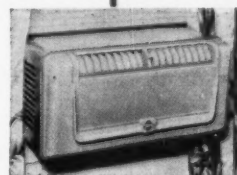
MODERNIZE YOUR PRODUCTS with modern materials for this competitive age... and none lends itself to this better than Durez plastics. Among thousands of cases in point is the Burgess Vibro-Sprayer for do-it-yourself enthusiasts — a far cry from its predecessors in convenience, versatility and attractive appearance.

Durez phenolics are themselves so versatile they can work wonders in creating new buy-interest for your

products. As molding compounds or as protective coating and industrial resins, they offer a long list of valuable characteristics to brighten your sales picture.

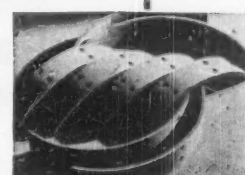
We can help you and your molder... with 32 years of specialized phenolics experience.

Just tell us what you have in mind. And let us send you our thought-provoking "Plastics News" each month. Durez Plastics & Chemicals, Inc., 1904 Walck Road, North Tonawanda, N. Y.



MOLDING COMPOUNDS. Structural, electrical, and chemical properties in many combinations

PHENOLIC PLASTICS
for the new
Competitive Era



RESINS FOR INDUSTRY. Bonding, casting, coating, laminating, impregnating, and shell molding.

THIS SEAL IS YOUR GUARANTEE

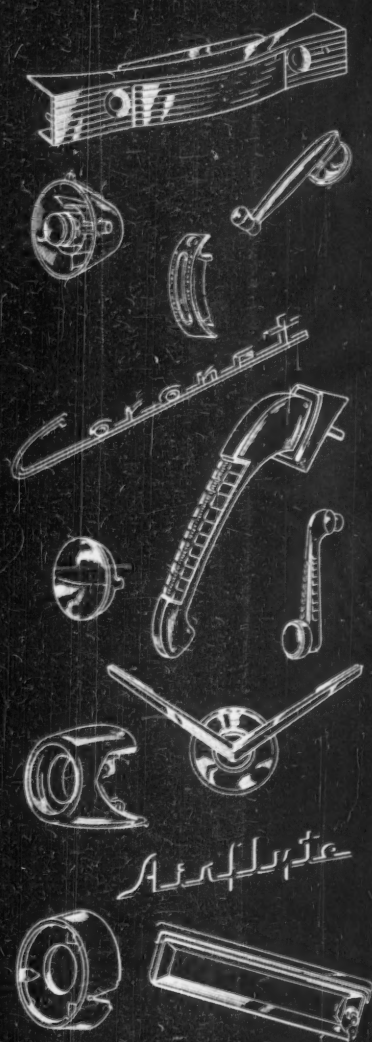
When Quality is a
Must in Finished
Die Castings



America's great industries demand *quality, quantity and fast delivery* of finished die castings. That's why more than a score of leading manufacturers in the refrigeration, automotive, radio-television, appliance and plumbing fields rely on Grand Rapids Brass Company.

Two Grand Rapids Brass Company plants now produce more than 17,000,000 plated, finished die castings each month.

If you require quality castings electroplated or baked synthetic lacquer finished delivered in large quantities *on schedule*, Grand Rapids Brass Company's design engineers and more than 1,000 skilled employees will prove of invaluable help.



• Write for complete details on the production capabilities of one of the largest die casting-finishing plants in the nation.

**Grand Rapids
Brass Company**

Division of Crampton Manufacturing Company
Grand Rapids Michigan

Suppliers
to the Nation's Leading
Automotive, Refrigeration,
and Plumbing Manufacturers

a 27 per cent increase in the number of failures contrasted with a 73 per cent decline in liabilities. In machinery manufacturing, failures in the first two months of 1954 were 86 per cent above a year ago, while the liabilities were more than eight times as large. The failure of several machinery manufacturers with liabilities of more than \$1,000,000 in February was chiefly responsible for the marked upsurge in liabilities. Early tabulations indicate that March may be another month with unusually high liabilities of failures in machinery manufacturing.

Geographically, mortality was heavier during the month in all regions save the Middle Atlantic States, where failures dipped mildly in both New York and New Jersey. More businesses failed than in February 1953 throughout the country.

The uptrend in failures from a year ago was moderate in the New England, Middle Atlantic, and South Central States, but was extremely sharp in other areas. The East North Central States had the most casualties in two years, the Pacific States in three years, and

the West North Central since 1949. Over twice as many South Atlantic failures were reported as in 1953; in fact, this region's mortality hit a post-war peak. Slightly more than one-half of the February casualties were concentrated in two states, New York and California. New York with 234 had about the same number as last year, but the California toll was up 58 per cent.

The failure increase continued to be centered in the non-metropolitan districts, while mortality in the twenty-five largest cities remained even with the January level. A dip occurred in the number of New York City casualties.

BUSINESS FAILURES include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.

CURRENT LIABILITIES, as used in the Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.

SAVE 20% on sealing costs!



"Dial" gummed tape electrically

The new Marsh Dial-Taper is real news to users of gummed tape. Dispenses all kinds, in widths to 3", electrically. Select your length on the telephone-type dial, dial it, and out it shoots moistened with warm water. Sticks instantly. Saves 1/5 on tape, often more in man-hours.

For more information or a free demonstration mail us this ad with your name and business letterhead

**MARSH Electric
Dial-Taper**

MARSH STENCIL MACHINE COMPANY
62 MARSH BLDG. • BELLEVILLE, ILL.



**LIGHTWEIGHT-
ECONOMICAL**

It's the Revolver® Portable Uplifter Elevator

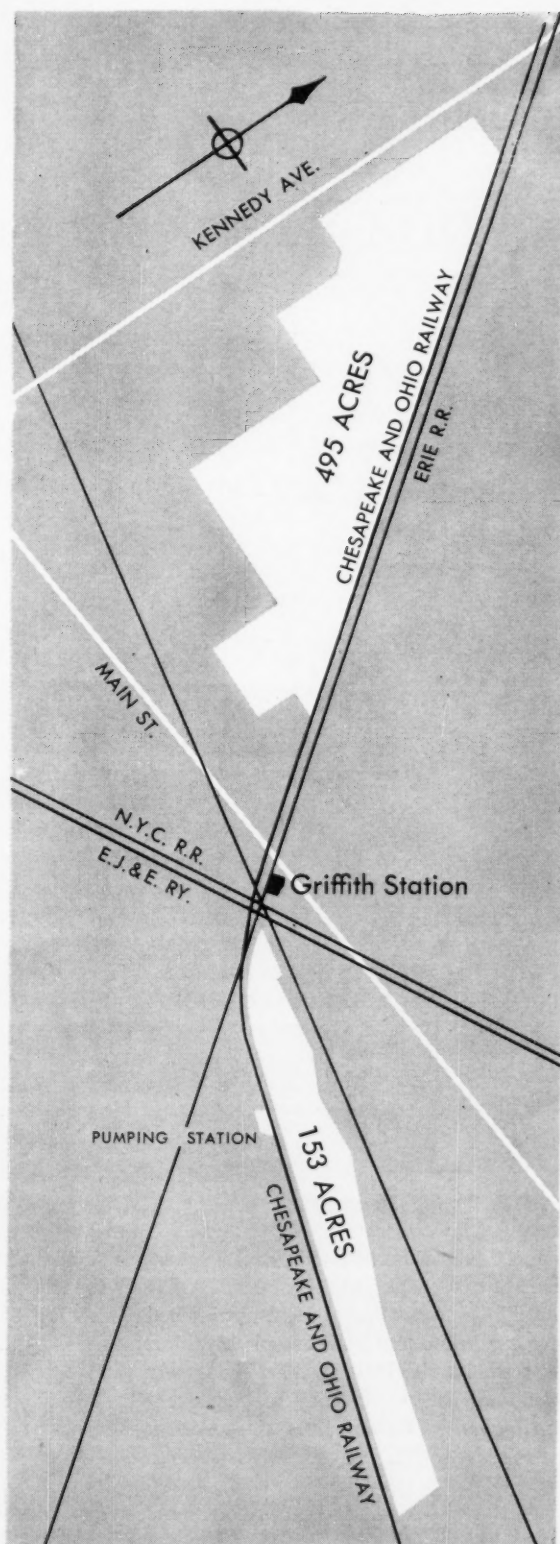
Adaptable for shop use or warehouse handling and ideal for shipping and receiving — the new electric Uplifter is the real buy today in materials handling. In two capacities, 1000 - 2000 pounds, platform sizes 24 x 24 and 30 x 30, lifts of 62 and 65 inches on standard models — the Revolver Uplifter can be had powered by a variety of electric circuits ranging from an automobile battery to 220 volt currents.

Priced under all competition, the Uplifter includes all the safety and convenience features that have made Revolver portable elevators a standard in industry. Get full information today on this new, easy operating inexpensive portable elevator. Remember, too — we build Revolver Portable elevators to your particular needs.

Write or phone

REVOLVATOR CO.

8702 Tonnelle Avenue, North Bergen, N. J. • UNION 3-8120



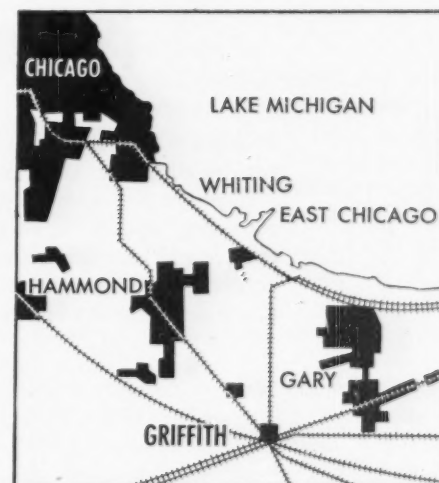
Why not go where the labor is ?

From the chiefly residential town of Griffith, Ind., hundreds of industrial workers commute daily to Hammond, Gary, East Chicago and Whiting. Many of these people have moved out to the Griffith area to get away from the congestion and less pleasant living conditions in these older industrial centers. Undoubtedly these workers would welcome jobs closer to their homes.

In addition to its favorable labor situation, Griffith offers exceptional transportation advantages. It is the junction point for five railroads — Chesapeake and Ohio, Erie, New York Central, Grand Trunk and Elgin, Joliet and Eastern (Chicago Outer Belt Line).

The C&O owns a 153-acre strip of land running southeast along its tracks for nearly two miles which would be suitable for industrial development. Just across the tracks from this is a group of wells, pumping station and softening plant which is available for anyone who needs a supply of conditioned water. There are several other potential sites north of Griffith and in nearby Highland, some of which are also shown on the map.

Give us your requirements and we will prepare a special Pin-Point Survey for you on this or other sites that meet your particular needs. Address: Chesapeake and Ohio Railway, Industrial Development Department, Cleveland 1, Ohio, Detroit 2, Mich., or Huntington 1, W. Va.



Chesapeake and Ohio Railway

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INDIANA • MICHIGAN • SOUTHERN ONTARIO
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Be your own Fortune Teller... in one easy lesson

It doesn't take much experting to forecast the competitive edge that Allegheny Metal can give you.

If you're one who'd use stainless steel in plant or processing equipment, its ease of cleaning, low maintenance and long life can cut production costs and raise your quality standards. If you use it in a product, the matchless strength and perennial beauty of stainless steel

can give you a bale of extra value to sell.

Either way, you'll have something going for you when the chips are down . . . when materials are plentiful but orders are tough. • Now's the time to start Allegheny Metal working for you, and we're ready to help every possible way. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

You can make it **BETTER** with
Allegheny Metal

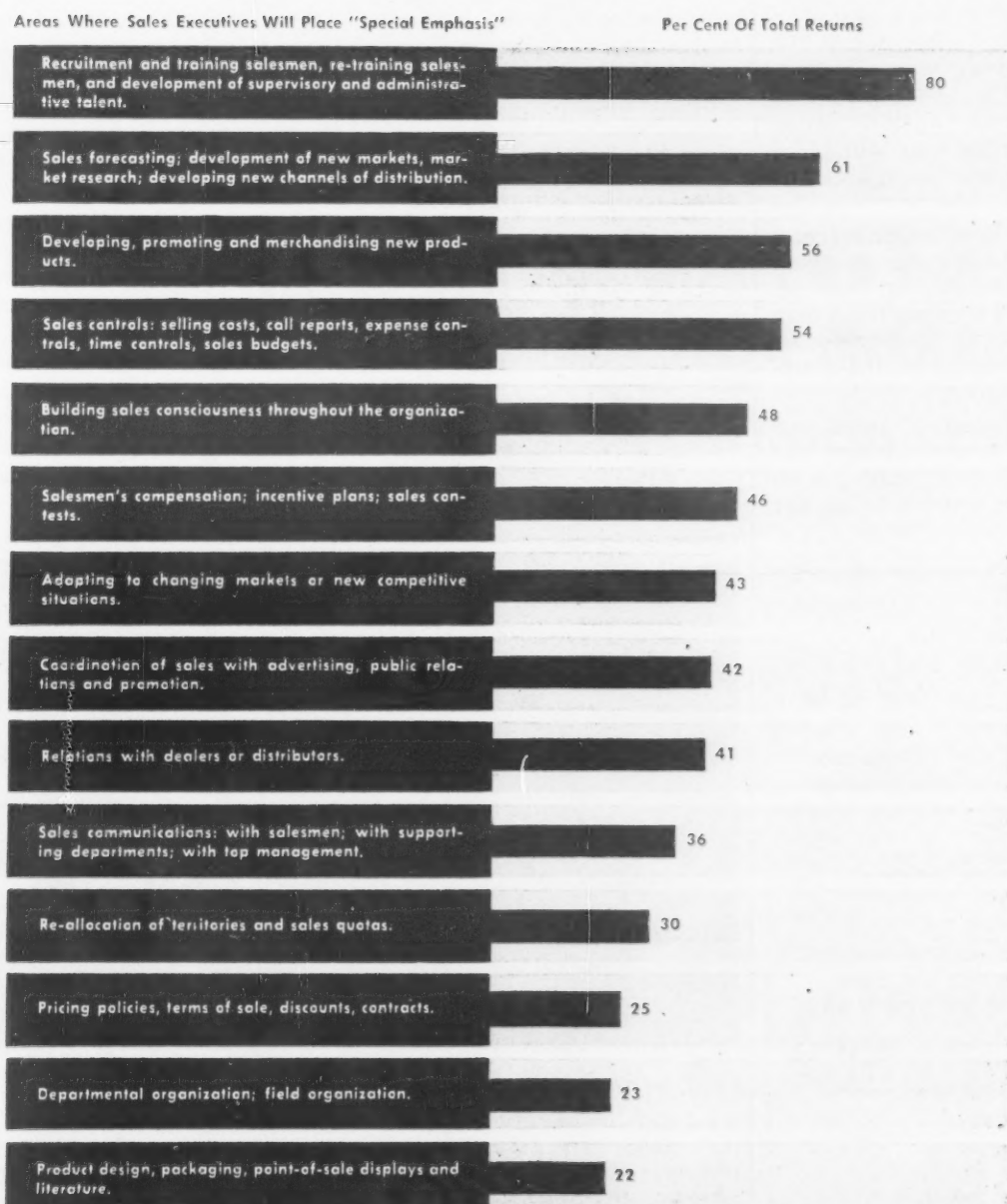
Warehouse stocks carried by all Ryerson plants



W&D 4858 B

SURVEY SHOWS WHERE SALES MANAGEMENT Will Bear Down Hardest This Year

*Other items: Training by conference . . . Trade show displays . . .
Discount house tactics . . . Duane Jones "case." . . Closed circuit TV.*



IF THIS is to be the year of the hard sell, what are the country's sales executives going to do about it? From the point of view of the management man currently in the middle, that is, between production and the treasurer, where are the weakest points in his department?

The bar chart to the left shows a large part of the answers. The result of a modest poll (79 respondents) conducted by this department among top-level sales management people (40 sales vice-presidents, 20 sales managers, and the remainder presidents, chairmen of the board, and assistant sales managers) shows that four out of five sales executives will concentrate their heaviest guns on training salesmen and administrative personnel. Nearly two out of three will work hardest on forecasting, market research, new market development, and new distribution channels, closely followed by emphasis on the whole area of new products.

Relatively few—one out of four, roughly—feel that their organizational structure needs overhauling or, at the least, deserves special emphasis. And even fewer are going to concentrate on packaging, product design, point-of-sale displays, and product literature.

The basic program for most sales executives seems to be this: train the staff; provide them with accurate sales information and new products, and then control selling and distribution costs.

The most recurrent comment among the replies is typified by this one from a vice-president of a large pharmaceutical corporation, "Biggest problem; toughen up the salesmanship of salesmen." Said another, "One of the most sensitive marketing problems existing to-day is the continual flood of depression, recession, transition, levelling off, and so on, that a sales staff is continually confronted with. Our problem is one of giving them substantial facts to generate enthusiasm. . . ."

Comments a sales vice-president of a major

INTERNATIONAL AMPHITHEATRE
CHICAGO MAY 17-20, 1954

BASIC MATERIALS EXPOSITION

THE PRODUCT DEVELOPMENT SHOW

Now — an exposition for product designers, research and development engineers, marketing and sales executives! The only exposition that presents all materials in one place, at one time, under one roof.

The Basic Materials Exposition is a scientific showcase enabling you to select new materials that will place your company's products out ahead of competition.

77% of last year's attendance found something completely new to them or found brand new uses for familiar materials. And, 29%* discovered they could now use a formerly rejected material—according to an independently conducted survey.

This will be a year of great new developments in product design and new materials. It will profit you to attend. Send the coupon today for tickets.

* Totals more than 100% because respondents answered more than one question.

Basic Materials Conference

Held concurrently with the Exposition. Led by T. C. Du Mond, editor of *Materials and Methods*. Covers new applications of materials.

Metals
Alloys
Plastics
Non-metallic materials
Coatings
Finishes
Fabricated parts and forms
Basic product components

chemical company, "The majority of men who have joined Sales in the last few years are younger men and more inquisitive; the old-time salesman was rather content to go along and sell his goods. The last ten years have changed that. Now he wants to know what is going on at the home office and what his future is.

"There are two schools of thought. One is 'tell them nothing,' and the other, 'tell them all.' We . . . tell them everything. . . . We have a much more satisfied employee and in the case of the field salesman, he does not have to worry about 'what are they doing back home'—he knows. He can concentrate on selling the goods."

His reaction to sales cost controls: "During EPT years we all developed some very expensive habits. Perhaps they could all be justified on the basis that the money was being spent to strengthen ourselves for just these days that are ahead. But an expensive habit once formed is hard to break. . . ."

RCA Victor tries out new sales-training method

Last month RCA began a new (for them) type of dealer sales training that will capitalize on extensive research by merchandising consultants Amos Parrish & Company, Inc.

Rather than the customary large regional meetings where the salesmen take notes on speeches given

by company training personnel, RCA is conducting small conferences with no more than fifteen persons at each. Sound educational theories behind this are that greater exposure, more participation, and the chance to hash out personal selling problems are better aids to learning than passive participation.

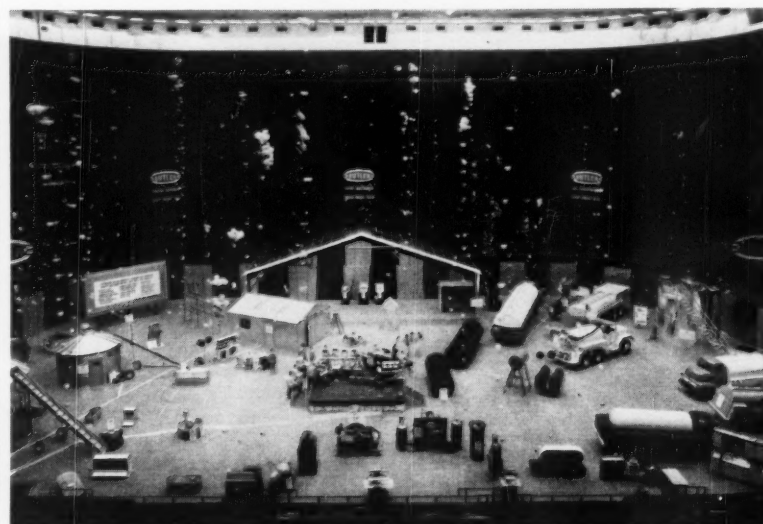
The fact that the conferences will be conducted by distributor representatives is the second new twist for the company. They believe that men well-known to the dealer salesmen will get more co-operation and, in turn, will be better able to handle this nearly personal type of training than professionals or home-office executives. Distributors will get advance briefing in conference techniques and study material.

Marketing briefs

* Two booklets worth noting: Clapp & Poliak, Inc., who handle a number of industrial shows, just published *How To Attract More Prospects To Your Booth*. Major point of interest are checklists of preshow planning suggestions.

For small manufacturers, *Making Your Sales Figures Talk*, published by the Small Business Administration. Also recommended as excellent material for executive trainees, it is a thorough and readable introduction to distribution analysis.

* New York City area's discount houses are quietly planning a pub-



Sales meeting needs arena to show products

When the Butler Manufacturing Company, Kansas City, Mo., decided to push tie-in sales for its specialized line salesmen, management found that

nothing less than the huge Kansas City municipal auditorium would contain the line of heavy equipment for the two-hour-long review.

☐ Send me expedited registration tickets for the Exposition. No registration fee.

☐ Send me registration forms for the Materials Conference.

Name _____ (please print)

Title _____

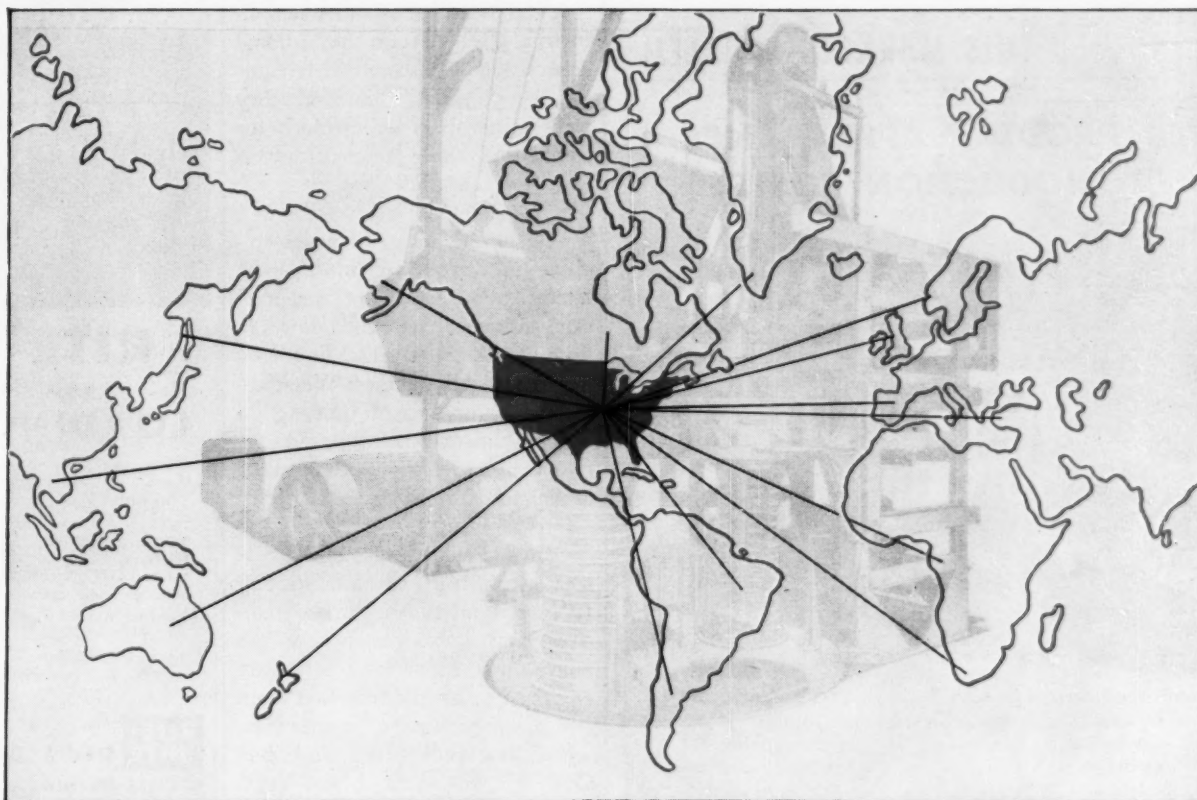
Company _____

Address _____

City _____ Zone _____ State _____

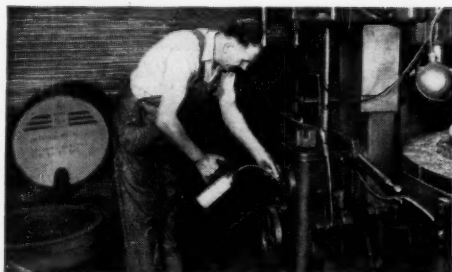
Mail To: Dept. B-4 CLAPP & POLIAK, Inc.

Show Management, 341 Madison Ave., New York 17, N. Y.

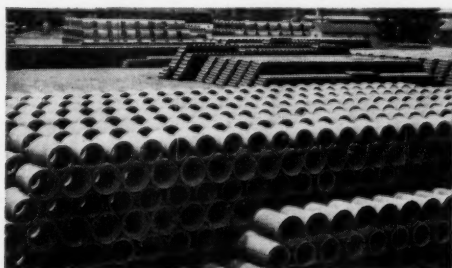


From Sioux City, Iowa:

CITIES SERVICE OILS AND GREASES SENT ALL OVER THE WORLD WITH McCracken Machines!



"OUR FINISHED MACHINES are completely serviced with Pacemaker 2 hydraulic fluid, Optimus 4 oil in the transmission and Trojan M for bearing grease."



CORRUGATED CONCRETE PIPES, used for sewer, culvert and irrigation work, are one of industry's most vital tools. McCracken Machines make the very finest.

ONE CITIES SERVICE PRODUCT SOLD MANUFACTURER ON THE COMPLETE CITIES SERVICE QUALITY LINE!

During the early part of World War II, Concrete Pipe Machinery Co., manufacturers of McCracken Machines, called in a Cities Service Lubrication Engineer for answers to some tough metal-cutting problems. On his recommendation, they tried Cities Service Cutting Oil, Chillo 93. Finished work was so improved and tool life so prolonged, that Concrete Pipe had a complete lubrication survey made of their plant.

THIS CAREFUL SURVEY PROVED THAT THE COMPLETE CITIES SERVICE LINE COULD DO THE BEST JOB FOR THEM. Electric motors, spindles, gear reducers, air compressors . . . drilling, grinding, machining of cast iron parts, threading, tool and die work . . . hydraulic systems, bearings, transmissions . . . Cities Service Industrial Oils, Greases and Cutting Oils did better on every job! Concrete Pipe Machinery Co. says: "They are giving us outstanding service, and availability and delivery have always been excellent."

If you'd like to talk to a Cities Service Lubrication Engineer, write Cities Service Oil Company, Sixty Wall Tower, New York 5, New York, or call the office nearest you.

CITIES  SERVICE
QUALITY PETROLEUM PRODUCTS

MARKEM**SOLVED THIS MARKING PROBLEM****IMPROVED PRODUCT APPEARANCE
—LOWER PRODUCTION COSTS**

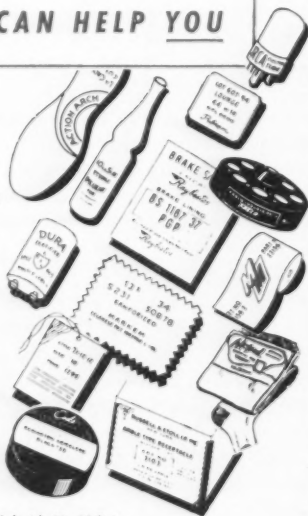
A manufacturer of wood screws increased his product's retail merchandising appeal by changing from cardboard boxes to plastic tube containers which clearly display the screws. He now prints all label data directly on the cylindrical container with a Markem machine. Quickly changed variables in imprints include: quantity, type of plating, head type, length and size. Containers are imprinted as and when needed; no inventory of marked containers need be maintained. The method eliminated outside printing changes, tremendous paper label inventories, and labor of label application. One Markem machine, printing at production rates in exact quantities, has made possible the more attractive and appealing package and at the same time reduced production costs appreciably.

THE MARKEM METHOD CAN HELP YOU

This is just an example of how Markem solves industry's marking problems. The complete Markem Method consists of:

- (1) ANALYSIS of your marking or imprinting problems, (2) RECOMMENDATION of appropriate Markem Machine, Markem Type and Markem Ink, and (3) SERVICE — in installation, instruction, maintenance and supply.

If you want to mark products, parts or packages for identification, control or market, get in touch with Markem. The Markem Method has been providing a single source for savings in time, effort and inventory... since 1911.



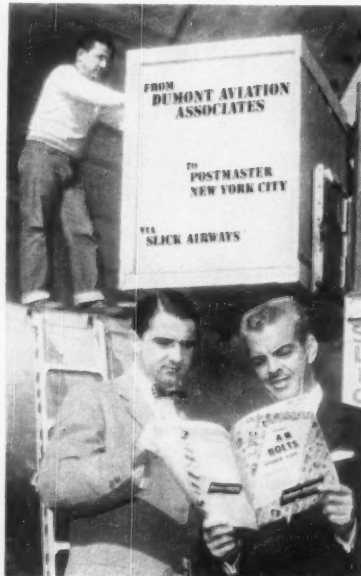
Markem Machine Company, Keene 16, N. H., U.S.A.

MARKEM
...TO MAKE YOUR MARK

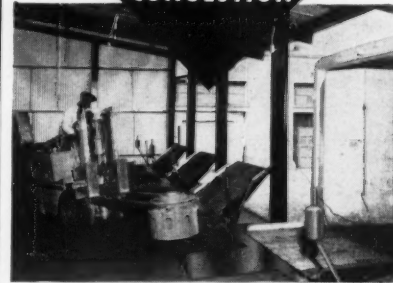
lic relations campaign to counteract manufacturers' widely publicized frontal attacks against their type of business. Their first step, in February, was to form the National Association of Discount Merchants. At that meeting, however, they were miles apart on methods for combatting their toughest adversary—the fair trade law.

* One of the most discussed episodes in advertising history—the Duane Jones "account stealing" case—seems to have boiled down, at least in the trade press, to a consensus along these lines: When admen are thinking of quitting an agency with a pirated account or two, their lawyers will be consulted as well as their consciences.

* Closed-circuit television finds new uses by the month. Slow starting (it's been around for more than five years), it has grown now to a point where about 100 theaters are equipped to handle reception from two major producers, Theater Network Television, Inc., and Box Office TV, Inc., both of New York. Most recent example of the medium's flexibility was the American Management Association's six-hour showing of electronic office equipment in February. Machines produced by eleven large companies were paraded on the screen before 1,500 office and financial executives in a New York hotel.

**Fast aid for buyers**

Weekly "in stock" lists of aviation parts are flown to central post offices for distribution to buyers by Dumont Aviation Associates, Long Beach, Cal.

**LOW-COST SOLUTION
TO LOADING DOCK
CONGESTION****RITE-HITE**

ADJUSTABLE

LOADING RAMP

Becomes a permanent part of your dock... keeps trucks and dock traffic smoothly on the move.

Simple, precision counterbalanced mechanism. No pipes, pumps, gears, motors. Little or no maintenance required. Horizontal adjustment feature reduces truck maneuvering.

Proven in use by dozens of leading commercial and industrial plants.*

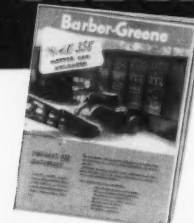
3 types, 5 models... capacities 10,000 and 20,000 pounds. Priced from \$395.

*Names on request.

RITE-HITE DIVISION

LOOMIS MACHINE COMPANY
FOURTH AND PINE STS., CLARE, MICH.

Send for
full details.
Write
Dept. D-44

**This Barber-Greene
FOLDER****SHOWS HOW**

- | | |
|-----------|----------------------------|
| 1 | man can move |
| 3 | tons of material in |
| 60 | seconds with |

a B-G CAR UNLOADER

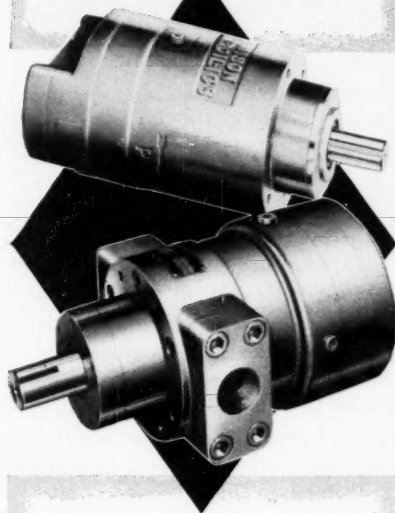


see your B-G distributor
or write

Barber-Greene
AURORA, ILLINOIS, U. S. A.

The Tougher they come . . .

**the Longer
they last!**



That's why there's so much demand for DENISON Hydrollic PUMPS and MOTORS

TOUGHNESS—the rugged compact design that *lasts longer* under today's heavy-duty, high-pressure demands—is a proved feature of Denison Hydrollic Pumps and Fluid Motors. Time and again, *comparison has shown* that they deliver highest efficiency, with less maintenance — at pressures up to 5000 psi — in industrial applications of every type.

To make sure you have full information on Denison Hydrollic Pumps and Motors, just mention "Pump and Motor Bulletins" on your letterhead. We'll send them promptly, without obligating you.

"The Finest Money Can Buy!"



The DENISON Engineering Co.
1211 Dublin Rd. Columbus 16, Ohio

* International advertisers will meet in New York's Plaza Hotel on May 14 for the sixth International Advertising Convention. Sponsored by the International Advertising Association (formerly the Export Advertising Association), the one-day meeting will be used to outline practical techniques in the various export markets.

* An unusual quarterly dividend letter from Atlas Powder Company "merchandises" the firm's advertising and promotional programs to its stockholders. Rather than the customary analyses of quarterly financial data, the letter, over President Gottshall's signature, describes the company's technical services, technical promotional literature, convention exhibits, and the over-all public relations program, ends up with a quiet suggestion that stockholders too get in the act as "unofficial sales representatives."

* For the marketing research library: the Office of Distribution (Department of Commerce) began a new service in March. It is a monthly descriptive listing of governmental and also non-governmental material of "significant interest" in the marketing and related fields. The first issue ran the gamut from the annual *Statistical Abstract of the United States* to a special survey published in February by *Printers' Ink* magazine.



Advertising in transit

Large drums designed by Jim Nash for the Magnus Chemical Company promote an entire family of products.

Handy extensions simplify the job of Tornado-cleaning this recently smoke-blackened wall at American Cholesterol Products, Inc.



Make a BREEZE Out of Plant Cleaning



with a
**300
M.P.H.**

TORNADO®

Detached from its base, the Tornado becomes a portable Pac-Vac—superb for cleaning hard-to-reach areas.

American Cholesterol Products in Milltown, New Jersey, maintains laboratory cleanliness in their pharmaceutical plant with a Tornado vacuum cleaner. Their Tornado makes a breeze out of such tedious jobs as cleaning soot laden walls, and creates no sooty mess during the process.

Cleaning of chemical tanks and equipment is simplified with the handy Tornado Pac-Vac. Detached from the vacuum tank, Tornado becomes a highly portable pack-carried vacuum cleaner. Slung from a comfortable harness, the Pack-Vac makes it possible for your maintenance men to climb scaffolds and crawl behind equipment to vacuum or blow dirt from areas normally inaccessible.

The 300 m.p.h. vacuum of Tornado can make a breeze out of your floor and machinery cleaning, furnace and heater maintenance, and a hundred other jobs around shop and office. Tornado picks up wet and dry materials without conversion. Find out how a relatively small investment in a Tornado can pay big dividends for you by speeding plant maintenance and boosting employee efficiency.

WRITE FOR BULLETIN 600

BREUER ELECTRIC MFG. CO.

5106 North Ravenswood Avenue • Chicago 40, Illinois





"Yes, we've found General Wirebounds cut shipping weight considerably."

You just can't get lighter, more rugged shipping containers than General Wirebound Boxes and Crates! The secret? Lighter, stronger materials, and the fact that each container is designed to fit the *particular* product.

Why not let our packaging laboratories design a new, streamlined container for your product? There's no charge for this service, and no obligation. Have one of our engineers call. And send for your free copy of "The General Box." It's loaded with money-saving, time-saving packaging ideas.

ENGINEERED CONTAINERS FOR EVERY SHIPPING NEED:

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Prescott, Ark.; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc. Houston.

General Box

GENERAL BOX COMPANY, 1861 MINER STREET, DES PLAINES, ILL.



Atoms at Work

One submarine propulsion unit installed; the prototype and hull for another under construction . . .

Agreement reached on the first public utility atomic power plant—to be built in Pittsburgh . . .

New research reactors operating in California and North Carolina, and another one authorized for Pennsylvania . . .

A host of new jobs for radioactive isotopes—by-products of atomic reactors—in petroleum processing (photograph at right), thickness measurement and flaw detection, and rubber, plastics, textile, metallurgical, and chemical research . . .

That's a quick rundown of the box score on the atom so far this year. It may be a while yet before we have atom-powered airplanes, or even atom-powered industrial plants (see *Modern Industry*, July 1953, page 41), but there's no doubt progress is being made.

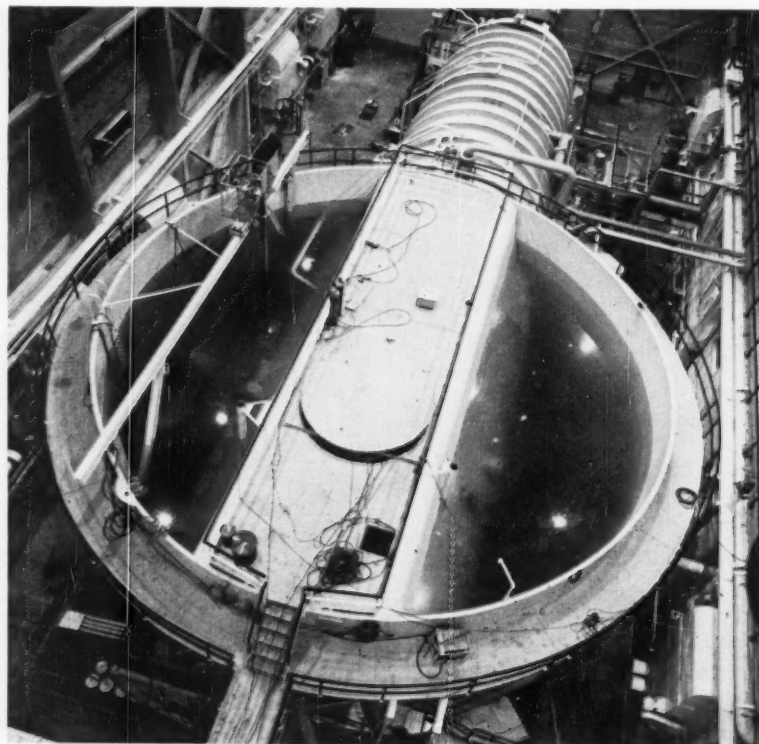
According to present plans, the central station nuclear power plant will be built and operated by Duquesne Light Company under Atomic Energy Commission spon-

sorship. Westinghouse Electric will design the reactor.

Pictured below is the first submarine propulsion unit—the Westinghouse Submarine Thermal Reactor (STR).

A second type, the Submarine Intermediate Reactor, is being built by General Electric, which operates the AEC's Knolls Atomic Power Laboratory. The steel shell which will house the prototype for this reactor has been completed, and the hull for its submarine is now under construction. Named the *Sea Wolf*, this submarine, like the *Nautilus* which houses the Westinghouse reactor, is being built by Electric Boat Company, Groton, Conn.

The new research reactors ("atomic piles") include a "percolating tea kettle" (homogeneous "water boiler" type) unit, completed by North American Aviation at the end of last year, and now being operated by California Research & Development; and two others of the same general type. One, the first privately owned atomic unit, is now operating at the Consolidated



First atomic engine for submarine propulsion went to sea in this tank at AEC Idaho testing station. It paved the way for a real marine unit, now installed in the *USS Nautilus*. Westinghouse Electric built both reactors.



Radioactive strontium simplifies hydrocarbon analysis. This Cenco Beta Ray Meter, developed by Standard Oil (Indiana), determines hydrogen content by comparing radiation absorption of known and unknown samples.

University of North Carolina; the second is authorized for construction by Pennsylvania State University.

Also planned as an aid—and an important one—to nuclear research is a 25-billion-volt particle accelerator to be built at Brookhaven National Laboratory. This will be ten times as powerful as Brookhaven's Cosmotron, and nearly five times as powerful as the University of California Radiation Laboratory's Bevatron. The Bevatron itself has just been completed, and is expected to open a good many atomic doors.

New applications for radioisotopes are almost too numerous to mention. Armour Research Foundation notes, for instance, that its use of radioisotopes in research—on ore separation, turbine blade wear, generation of electrical energy, automatic machine control, soil permeability, and biological problems—has multiplied 100-fold in the past two years alone.

The variety of isotopes and isotope-containing chemical compounds available for industrial use is steadily increasing. Recently, for example, Oak Ridge National Laboratory, operated by Union Carbide, announced that a new isotope-separation technique makes it possible to obtain appreciable amounts of ruthenium, palladium, iridium, and platinum isotopes from reactor-bombarded metallic samples. These, and others produced by the new

method, will be made available for industrial and university research.

The search for a practical, economical way to convert the nuclear energy of radioisotopes directly into usable electrical power is quickening, with several kinds of "atomic batteries" being tested.

However, a good many questions remain to be answered before any device of this type is ready for general commercial application. The amount of power which can be obtained is still very small, and the cost is high.

For those who want to learn more about the atom, training courses are now offered by leading universities; and ORNL conducts the Oak Ridge School of Reactor Technology, a 50-week course designed for those holding a degree in engineering, metallurgy, physics, or chemistry. There is no tuition charge. Information may be had from ORSORT, Box P, Oak Ridge, Tenn.

Incidentally, chemists and engineers have been given a new incentive for learning, and using, isotope techniques: Nuclear Instrument & Chemical Corporation is sponsoring an annual \$1,000 award for "outstanding contribution to nuclear isotopic applications in the field of chemistry," to be administered by the American Chemical Society. The ACS is now seeking nominations for the initial award presentation.



Too many chiefs, not enough originals—

It used to be a sin to send a carbon copy to a Vice President in our company. All the officers had to have originals. Old tradition, or something. Sure burned up a lot of time typing extra copies. Burned me up, too!

Then we learned about the Bambino—and our stenos stopped being rubber stamps!

The Bambino is the new Ozalid® machine for office use, little larger than a typewriter.

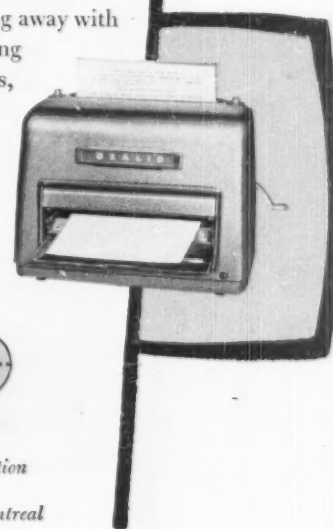
It will reproduce anything typed, written, drawn, or printed on translucent paper that is not over nine inches wide, any length. Makes up to 200 copies an hour on specially coated Ozalid papers—or on film, cloth, cards, in a variety of colors. A letter-size sheet is copied for less than two cents.

The Bambino does not need stencils, negatives, inks, messy solutions. Anybody can use one. And it pays for itself in a short time, by doing away with hand copying and extra typing; making available duplicates of records, reports, forms, orders, diagrams and charts. Modestly priced at \$410. Even small offices find it profitable.

For a demonstration, call Ozalid office or distributor in your phone directory. Or write for free folder—to 40 Ozaway, Johnson City, N.Y.

THE BAMBINO
copying machine for the office

A Division of General Aniline & Film Corporation
... From Research to Reality
In Canada, Hughes Owens Company, Ltd., Montreal



HOW WOULD YOU shake 75 tons of sticky ore FROM A RAILWAY CAR?

Here's another way Whiting Crane Engineers help meet handling needs!



WHITING
OVERHEAD CRANES

When Great Northern Railway was faced with this unloading problem their engineers came up with a unique answer . . . do it with a *Gantry Crane* fitted with a vibrator! Then Whiting's local representative and Whiting engineers were called in to lend their experience and technical knowledge . . . and to provide a Whiting Gantry Crane "tailor-made" for the job. The result of this teamwork? The satisfactory answer!

This is typical of the way Whiting Crane Engineers serve all industry . . . and a basic reason why performance and cost-conscious management choose Whiting *Engineered Cranes*. Whiting offers a *complete* line of cranes to meet *every* need: electric and hand-power traveling cranes, gantry, stacker, jib and pillar cranes. Write for complete information about Whiting Engineered Cranes today!

WHITING CORPORATION

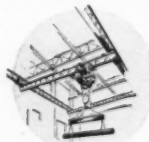
15654 Lathrop Avenue, Harvey, Illinois

Sales Offices and Distributors in All Principal Cities

THESE WHITING PRODUCTS ALSO SPEED INDUSTRY'S WORK



The Whiting Trackmobile



Trambeam Handling Systems



Electric Chain Hoists

. . . and Foundry, Transportation, Aviation Equipment—Swenson Equipment for the Chemical Process Industries—Metal-Working Machinery.

Here and There in Business

WHAT'S NEW

AS OBSERVED BY THE EDITORS

A new water-resistant insulation for underground pipelines, process equipment that has to be washed down, and the like, has been developed under Magnesia Insulation Manufacturers Association sponsorship. The new material, which is said to resist such severe tests as long-continued intermittent boiling and drying, and to retain all the qualities of standard 85 per cent magnesia insulation, will be made available by Association members: Philip Carey Manufacturing Company, Ehret Magnesia Manufactur-

ing Company, Johns-Manville Sales Corporation, Keasbey & Mattison Company, Mundet Cork Corporation, and Pabco Products, Inc. The new material is not designed to replace standard 85 per cent magnesia, but rather to supplement it in places where severe moisture problems exist.

Aptly named the "Trailblazer," Sheffield Corporation's first production model of the Cavitron ultrasonic machine tool, pictured

HANSEN
THE TACKER
with 1001 USES

HANSEN Tackers require "only half the time of the former taping operation" in the plant of Gibson, Inc., Kalamazoo, Mich., world's largest makers of guitars, banjos, etc.

"Before using the Hansen Tacker, the veneers were taped together with paper. Since using the Tacker we find the cost of the tacks to be less than the tape cost."

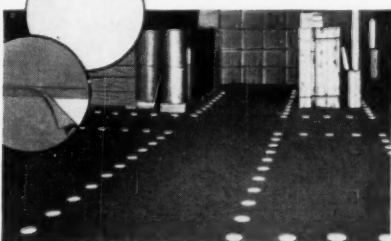
Use HANSEN, the modern method for 1001 tacking and fastening jobs.

REQUEST BOOKLET



A.L. HANSEN MFG. CO.
5034 RAVENSWOOD AVE.
CHICAGO 40, ILL.

**OUTLAST
PAINTED LINES
5 to 1!**



BRADY DOTTED LINE AISLE MARKERS

Pressure-sensitive Brady Aisle Markers cost less to buy—apply—maintain than any other aisle marking method. Stick instantly to clean, dry floors. No moistening or machines needed. Make straight or curved lines anytime without disrupting production. No one waits while paint dries. New, special plastic construction resists abrasion, dirt, acids, oils, most solvents. Stocked in 4 vivid colors and sizes; specials to order. For FREE samples and literature, write W. H. Brady Company, 709 W. Glendale Ave., Milwaukee 12, Wis.

BRADY NO. 1 NAME, NO. 1 SOURCE
Pressure-Sensitive
Industrial Products

Is your paper work putting a PALL ON PROFITS?

Is your company paper work properly simplified and mechanized?

Here is another point of attack on today's sharply rising costs of doing business.

As manufacturing has become more systematized the number of clerical workers, in most instances, has increased faster than the number of factory employees. Mechanization and standards have been applied to factory function with notable success, while the mechanization and the establishment of office work-load standards for clerical functions has been much less thorough.

Do you know the total cost of your paper work? Are these costs hidden perhaps under the general heading of "administrative expense"? The startling fact is that, in many instances, the salaries of the executive staff and clerical force often appear as one sum on the operating statement, while the factory payroll is always clearly differentiated. This tends to obscure excessive clerical expense.

A professional management consulting firm might well tackle the problem of paper work from several angles. For example, a consultant would dig deeply to discover just how much paper work is unnecessary, how much is useless. A second step would be to analyze the overall situation with a view to introducing better systems and adequate mechanization. Finally, a management consultant would leave no stone unturned, investigating the possibilities of placing certain employees on a work standard basis, exploring the opportunities for greater output per employee.

Best results, however, should be expected from that management consultant firm whose background embraces many similar paper work problems, whose well-of-experience is deep enough never to run dry of sound solutions.

BARRINGTON ASSOCIATES, INC.

Management Consultation • Business Research

230 Park Avenue, New York 17, N. Y.

ESTABLISHED 1926

SALES POLICIES AND METHODS • SALES COMPENSATION • SALES ORGANIZATION
MANAGEMENT CONTROLS • PERSONNEL AND LABOR RELATIONS
ORGANIZATION PLANNING AND DEVELOPMENT • MANUFACTURING METHODS
SYSTEMS AND PROCEDURES • WORK STANDARDS

Member Association of Consulting Management Engineers

**Cash in
on your
offset
duplicator's
idle time!**



Everyone who owns or operates an offset duplicator should have a copy of this booklet. It tells how you can put idle duplicator time to valuable use—how Colitho Offset Duplicating Plates are used to cut paperwork corners efficiently—how to eliminate transcription errors and reduce production costs. You'll find it full of useful ideas.

IT'S FREE!

Please use the coupon and attach it to your business letterhead.

Colitho

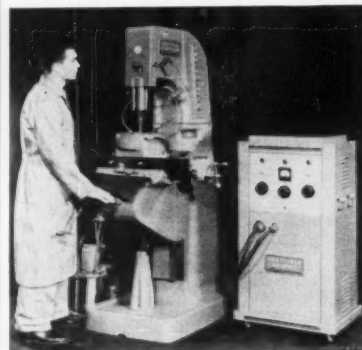
THE "ONE-WRITE" WAY TO RUN A BUSINESS

Colitho Division COLUMBIA RIBBON AND CARBON MFG., CO., Inc.
804 Herb Hill Road, Glen Cove, N. Y.

Send the booklet "Cash In On Your Duplicator's Idle Time."

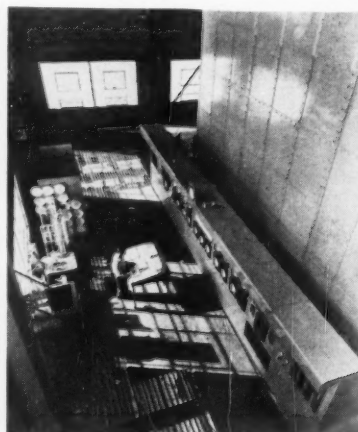
Name _____
Company _____
Address _____
City _____ Zone _____ State _____

here, is now ready for industrial use. This machine, which uses high-frequency sound waves to cut through metal, carbides, ceramics, and glass (see October, page 48, and March, page 104), will drill holes



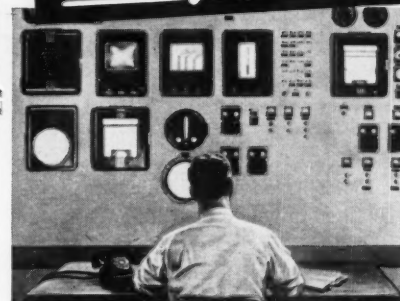
even smaller than 1/64 inch, and will reproduce finely detailed designs, intaglio style. Because the cutting tool never actually touches the work, but, rather, forces an abrasive slurry against it, relatively low-cost tooling materials like carbon steel may be used. Sheffield Corporation, Dayton 1, Ohio, plans several models in addition to the one shown.

Tonnage oxygen helps International Nickel Company improve copper smelting operations, and also permits economical recovery of liquid sulfur dioxide from furnace exhaust gases. The oxygen-generating plant, pictured here, is said to be the only one of its kind in Canada, and produces 300 tons of oxygen a day. Like many other industrial



uses for oxygen and nitrogen (see *Modern Industry*, February 1953, page 40), it's bringing new advantages and savings, but like any new technique, use of oxygen for direct flash-smelting of concentrates also poses new problems. As Inco points

**DIAMOND
"UTILISCOPE"
(WIRED TELEVISION)
IMPROVES
Centralized Control**



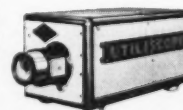
Operator in central control room of large power station "SEES WHERE HE CAN'T LOOK". Here he watches flame conditions in boiler furnace, stack smoke discharge, and water level in boiler on "Utiliscope" screens of control panel.

Centralized control is much more effective if it brings a SENSE OF REALISM into the control room... if the operator can actually see what is going on outside his range of vision instead of depending upon indirect interpretations of operating conditions. The electric power industry has accepted the "Utiliscope" as an important factor in achieving better centralized control (as shown above).

The "Utiliscope" has many other uses in industry where its low cost is quickly amortized by improved operation, greater safety or savings in labor. It is surprisingly simple and requires no special skill for installation and operation. Stability and reliability are exceptional. For additional information use coupon below.



"UTILISCOPE" RECEIVER



"UTILISCOPE" CAMERA

**DIAMOND POWER SPECIALTY CORP.
LANCASTER, OHIO**

Please send me without obligation a copy of new Bulletin No. 1136 showing how the Diamond "Utiliscope" (Wired Television) is being used to cut costs, improve operations and promote safety.

Name _____
Company _____
Address _____

6701

**DIAMOND POWER SPECIALTY CORP.
FIRST IN INDUSTRIAL TELEVISION
LANCASTER, OHIO
OFFICES IN 39 PRINCIPAL CITIES**

Diamond Specialty Limited — Windsor, Ontario
Since 1903, Diamond has Manufactured
Quality Equipment for Industry

out, liquefaction of oxygen involves temperatures several hundred degrees below zero. Equipment must be designed, and materials chosen with considerable care. Inco used a special 8.5 per cent nickel steel for the regenerators; welded them with 310 stainless steel electrodes.

Want to entice customers?

Don't overlook opportunities to make your product easier to use. There are plenty of ways to do it—and smart companies are taking advantage of them:

An increasing number of products, for instance, are being put in aerosol form (see September, page 56, and March, page 102).

Pen-type devices are always popular. To-day, there are pen-type flashlights, staplers—and even a pen-type pen (a felt-nib marking device, obtainable in pen form for the first time, the maker says).

Packets for individual use are no longer confined to powdered products. The advent of moisture-resistant plastic films make possible many new flat packets; and plastic capsules are being used for such varied

products as sun tan oil and detergents.

New bus duct for direct connection of generators and main power transformers saves in at least three ways, says General Electric's High Voltage Switchgear Department, Philadelphia, Pa. It's more than 13



per cent lighter than previous units, has single insulator supports which reduce possibility of insulation failure, and it's easier to install and maintain. The metal sheath, which permits use of unit supports, fea-



You can bank on it...

And lots of bankers do! One bank found that its worn-out mail scale outweighed, cost more than \$2 a day in wasted postage!

This precision Pitney-Bowes mailing scale is as accurate as an interest table. Its automatic pendulum mechanism registers weight fast. Its hairline indicator and wide-spaced graduations never waver. Large, wide-spaced markings are easy to read, speed mailing...Special models for parcel post...Ask the nearest P-B office to show you. Or send for free illustrated booklet.

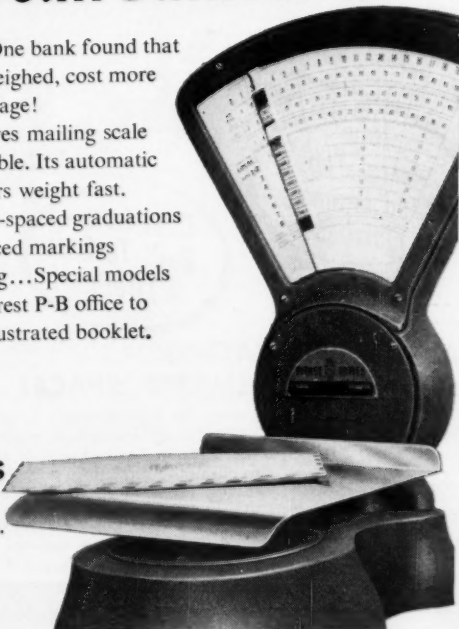
FREE: Handy wall chart of Postal Rates with parcel post map and zone finder.



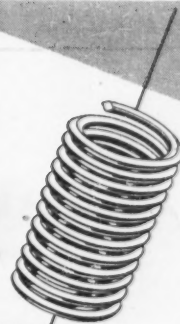
PITNEY-BOWES Mailing Scales

PITNEY-BOWES, INC.
1581 Pacific St., Stamford, Conn.

Originators of the postage meter
...offices in 93 cities



Stronger Threaded Assemblies



make this product
**BETTER AND EASIER
TO SELL...**

General Controls — and a lot of other manufacturers — are boosting their sales by advertising their use of Heli-Coil® Screw Thread Inserts as a "plus" in their product.

Look again at the General Controls Shut-off Valve ads: The assembled castings are aluminum, and a leak-

proof fit between them is absolutely essential. That demands *strong* threads in a comparatively soft material.

General gets strong threads by using **Heli-Coil** Inserts — threads that are strip-proof, vibration-proof, corrosion-proof, practically negligible in cost.

And General *cashes in* by telling their customers that the threads in their shut-off valves are stronger because of **Heli-Coil** Inserts.

To find out how **Heli-Coil** Inserts can make your product easier to sell, mail this coupon — *today*.

Heli-Coil Inserts conform to official Military Standards MS-122076 (ASG) through MS-124850 (ASG) and others.

® Reg. U. S. Pat. Off.

HELI-COIL CORPORATION

224 SHELTER ROCK LANE, DANBURY, CONN.



- ☐ Send samples and Bulletin 689 — Military Standard Sheets.
- ☐ Please have a Heli-Coil Thread Engineer call.
- ☐ Please send "Pick Up The Thread" — story of Heli-Coil Inserts as they affect management.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

American Credit Insurance Keeps Credit Costs Primary!

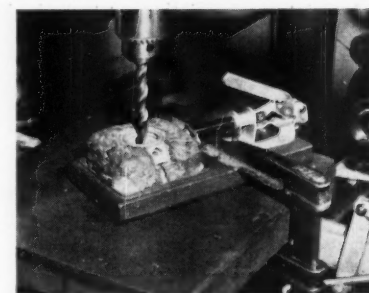
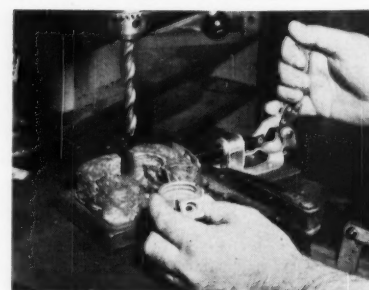
1. Helps avoid secondary credit costs.
2. Protects working capital invested in Receivables.
3. Provides endorsement for borrowing purposes.
4. Backs judgement of Credit Executive.
5. Gives positive loss prevention.
6. Harmonizes Credit-Sales relations.
7. Promotes efficiency in organization.
8. Creates confidence—basis of all credit.
9. Provides service for handling collections.
10. Minimizes risk and anxiety, promotes planning.
11. Endorses customer's promise to pay.
12. Gives Accounts Receivable real value.
13. Provides accurate cost basis of shipments.

For booklet, write Dept. 50, First National Bank Building, Baltimore 2, Md.

**American Credit
Indemnity Company**
of New York

tures simplified closures for easier access (as shown in photograph), smaller covers, ground clip that slides back for testing without disassembly.

Design changes in their line of heavy-duty, saddle-type lathes are announced by The Warner & Swasey Company, 5701 Carnegie Avenue, Cleveland, Ohio. Maintaining the present sizes of 1A, 2A, 3A, and 4A lathes, the manufacturers state that the new models have increased power, wider range of speeds, and automatic gear shift controls, all of which increase the speed and efficiency of operation. The new line should be ready for production during the year, but present models will remain in production too.



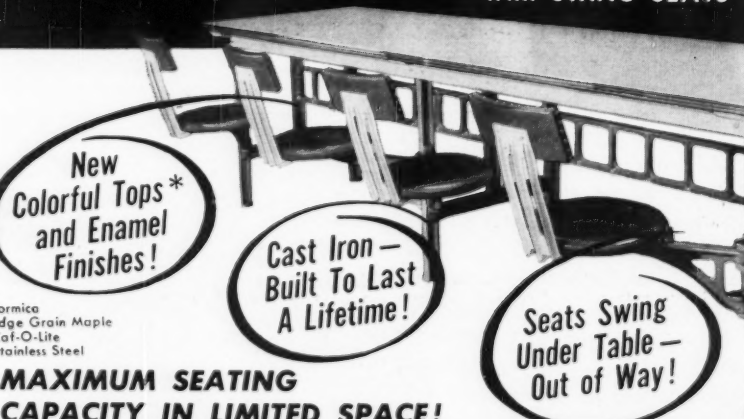
A "plastic metal," which can be molded like modeling clay, hardens in about two hours, and, says the manufacturer, Chemical Development Corporation, Danvers, Mass., can be sawed, drilled, tapped, threaded, and ground. Combining fine steel powders and a plastic binder, the material, "Devcon," is

supplied in one and four pound cans, and in bulk containers with the exact amount of hardener needed. The photographs show it made into a simple drilling fixture.

Fork trucks are being made more useful in a number of ways: Higher and higher stacking is be-

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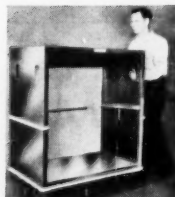
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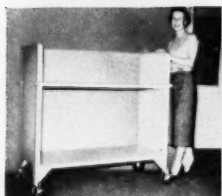
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They're important cost-savers, reducing dead-weight as much as 75%, sometimes converting a two-man-push into a one-man-job, when replacing the outmoded pushcarts made of heavy metal or wood. Describe what your pushers are now pushing by phone or letter to B&P. We'll send you pictures and designs, with estimated weight reduction and costs.

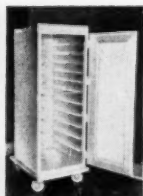
Janitor Truck Push-around for factory materials handling, including scrap and refuse.



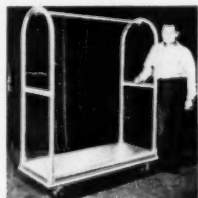
Popular Pusharound is the Merchandise Stock Truck. Has rubber, bumper-strips.



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TASHMOO 5-5900 DETROIT 16

coming possible, for instance. Automatic Transportation Company, Chicago, Ill., has a triple-telescopic mast for its standard 83-inch fork truck, which is said to permit stacking up to sixteen-and-a-half feet, making it possible to take greater advantage of high-ceilinged warehouses and other storage places.

Shifting loads was a problem at Honeggers' & Company, a feed mill in central Illinois, since sometimes pallets were desired and sometimes they were not. Towmotor helped out with a pallet designed so that it could be picked up or left, whichever was desired. Waxing the forks makes it easy to withdraw them, even from between palletless loads.

Gerber Foods, Inc., needed a "fumeless" fork truck for its warehouse—and it didn't want to buy a special truck for the job. Gerber en-



gineers found they could convert a standard 4,000-pound Clark Car-loader to liquefied petroleum gas. All that was necessary was to add a vaporizer and an eight-gallon LPG tank, equipped with nozzle and hose attachment. Replacing empty tanks takes less than five minutes, Gerber reports. The photograph shows the converted truck in use, with its barrel-shaped LPG tank mounted at the rear.

Plastic-bodied trailer trucks have completed field tests and are now being placed in production. The manufacturer, Strick Company, Philadelphia, Pa., lists a number of advantages: light weight; resistance to corrosion and non-electrolytic properties, which will make it possible to transport acid or alkali cargo; and ease of repair.

Other developments in the trailer trucking field come from the Frue-

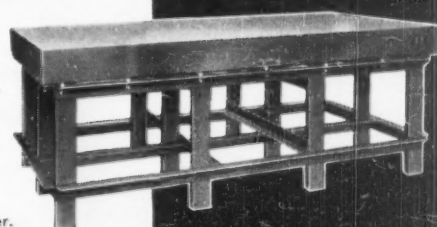
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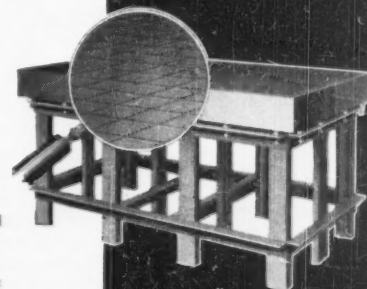
LAYOUT SURFACE PLATES

Built of special analysis semi-steel with a smooth, square surface-precision ground or planer finished. Standard sizes range from 12" x 18" to 54" x 144". Plates can be grooved and keyed so that two or more can be assembled into one huge unit of unlimited size. Surface Plates with "Tee-Slots", grooving, scoring or machining are available on special order. (Tee-slots cannot be added after plates are made.) All-steel stands are arc welded for rigidity. Lock leveling screws assure a perfectly level surface.



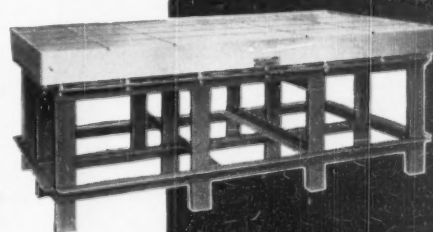
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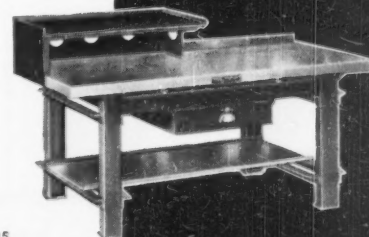
Built of special analysis semi-steel to provide a smooth, accurate surface with "Tee-Slots" for assembling, locating and welding. They are available in three standard sizes: 30" x 60", 48" x 96" and 54" x 144"; other sizes to order. A sturdy all-steel stand with leveling screws is included with table.



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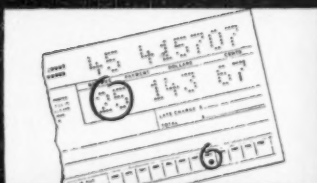
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hauf Trailer Company, Cleveland, Ohio. This company unveiled four new models in the 1954 display. These are a "Hi-Cube" corrugated aluminum trailer, a platform trailer, a stainless trailer, and a tank trailer. Each model brings a number of modifications over previous trailers according to the company.

A cut-off saw, designed for use on masonry materials, operates wet or dry, uses either diamond abrasive blades or ordinary abrasive cut-off wheels. It is said to be easily adjustable; has a one-and-a-half horsepower motor that operates on 110-120 volts and an electric pump which supplies coolant for wet cutting. Felker Manufacturing Company, Torrance, Cal., makes it.

Diesel engine makers say you can cut costs and speed operations by using Diesel power instead of steam, whether you're modernizing old equipment or installing new. Pictured here are two instances to



prove the point. Above is a 27-year-old Orton locomotive crane used by Amalgamated Sugar, Twin Falls, Idaho, for general materials handling. Replacing the original steam engine with a General Motors four-cylinder Diesel makes it possible,

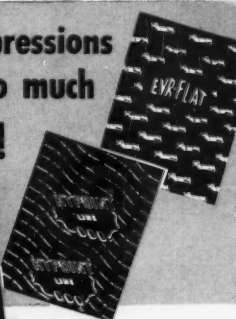
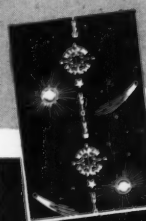
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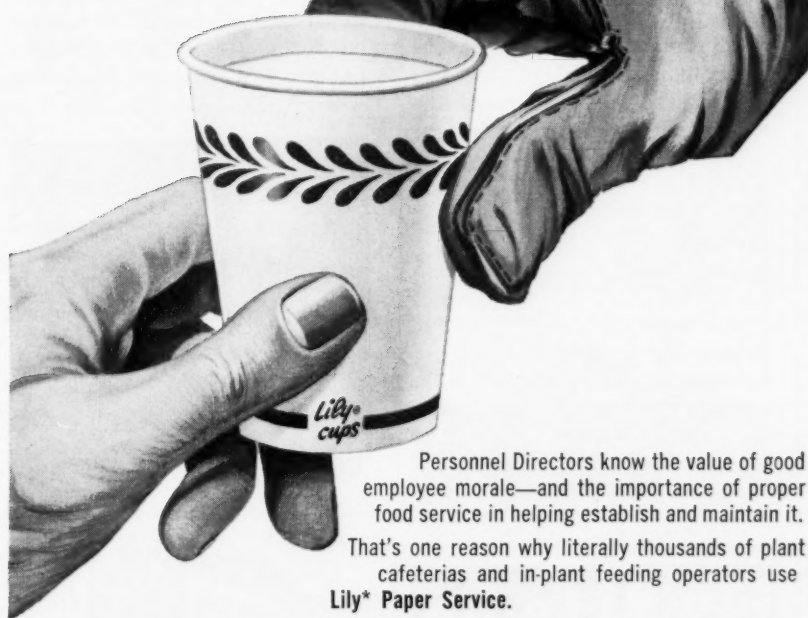
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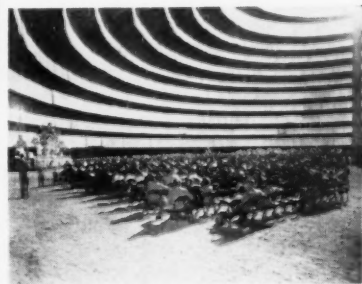
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according to Amalgamated, to save \$20 a day on fuel costs; practically eliminate downtime and maintenance. In the lower photograph is a brand new, 45-ton Diesel-electric locomotive built by General Electric for Crossett Chemical Company which not only replaces two 50-ton steam locomotives but also, according to Crossett, reduces operating costs as much as \$600 a month. Furthermore, says Crossett's plant superintendent, "The new engine operates so much faster that we do not have to work overtime." That means a big saving on labor costs as well.

Hemispherical buildings are not new, but continued improvements in design, construction, and building techniques make each successive one interesting. This one, built by R. G. LeTourneau, Inc., Longview, Tex., provides a large amount of space (3,289,402 cubic feet and 70,686 square feet), unobstructed by interior supports. The



prepared aluminum and steel parts can all be assembled at ground level, LeTourneau says, although construction begins with the peak structure.

A steel center-pole is first erected and a sliding steel collar is attached. As fifteen rings of aluminum sheets are joined, the whole is gradually raised up the pole by an electric winch. With the attachment of the last ring, the steel collar is at the top of the pole, and the lower edges are ready to be secured to the concrete foundation which has been poured

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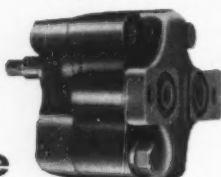
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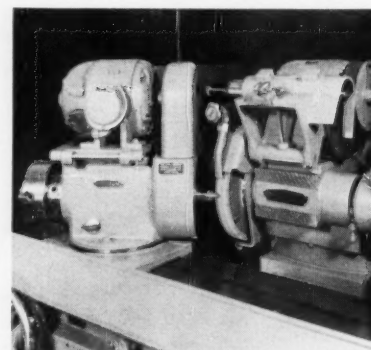
in advance. The center pole may be left or removed, as the owner desires. Finishing details, such as electric wiring, heating, flooring, and so on, are added according to the use to be made of building. Pictures show an air view and an interior. Hanging flaps are acoustical material for auditorium purposes. Suggested uses for the building include: warehousing, manufacturing, and display areas. Erection time is estimated at 3,000 man-hours.

Busy executives needing immediate contact with others in the office can have a "right of way" over the "Dial-X" private telephone system recently announced by the Sound Equipment Division of the Stromberg-Carlson Company, Rochester, N. Y. By pressing a button, key men can put through urgent messages whether the line is busy or not. Another feature of this dial-type intercommunication system, is a "memory" circuit which makes it unnecessary to dial a busy number a second time. The switchboard remembers the call and completes it as soon as the line is free. Addi-

tional facilities provided are direct connection with a paging system; telephone conference convenience; unlimited simultaneous service; and protection against eavesdropping.

The system is available in 20 and 40-line capacities, although any amount can be had on the first installation, and each line can have up to six extensions. Additional lines can be added at any time.

A grinding machine with a swiveling headstock providing added versatility, is the 12-inch U-4 being manufactured by the Norton Company, Worcester 6, Mass. The swiveling headstock has a dog drive



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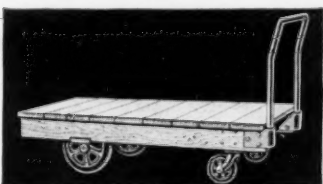
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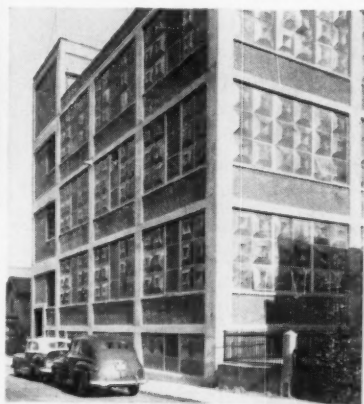
plate at one end and a 5-inch D-1 cam lock nose at the other, necessitating only a 180° rotation to change set-ups from dog drive to chucking. Other features of this machine include a work speed range of 40 to 400 r.p.m.; a hinged bracket internal grinding spindle; added capacity for long shafts; combination lever and hand wheel operated foot-stock; and convenient grouping of electrical controls.

Safety windows for industrial plants and other buildings are now being made of several types of plastic. Tenite butyrate plastic, a product of Eastman Chemical Products, Inc., Kingsport, Tenn., is being



used by the General Plastics Company, Marion, Ind., to produce flexible panes which will release themselves from the window casings should a blast occur.

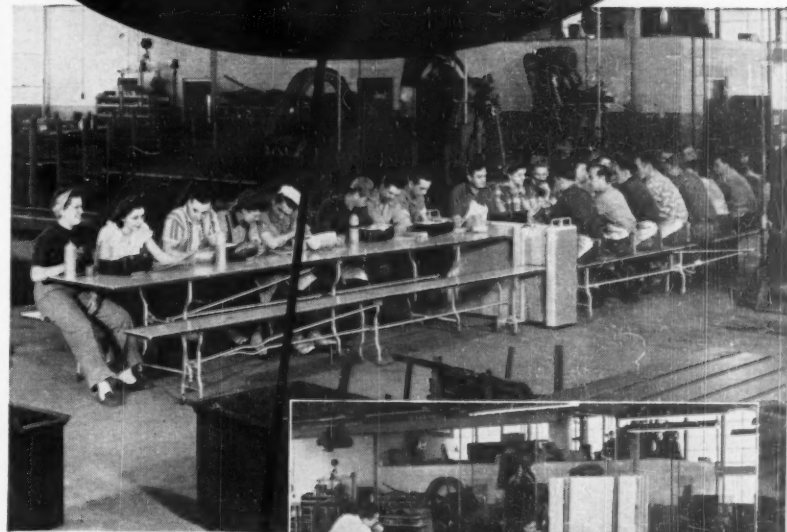
Another type of plastic safety window is being made by Molded Insulation Company, Inc., 335 East Price Street, Philadelphia, Pa., from



fibrous glass and Vibrin, a polyester resin produced by the Naugatuck Chemical Division, United States Rubber Company. These are curved panes which snap into place, and "are designed to supplement glass

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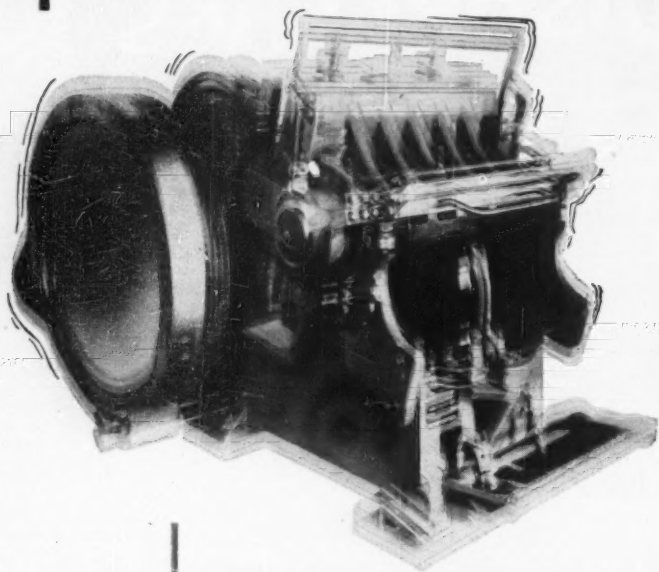
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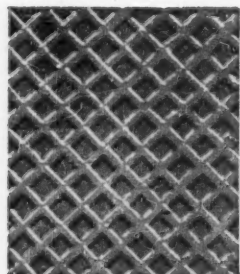


Stop Machine VIBRATION

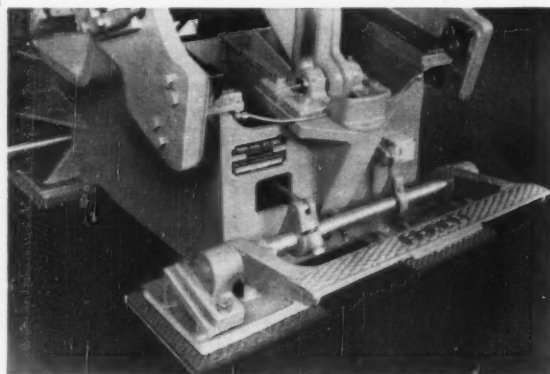


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CEMENTING PAD
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Air-Loc 4-17-4 is easily cut to fit contours of any machine base. Typical applications include: punch presses, textile looms, printing presses, home washing machines.



Now, with a new type of machine pad made with BAKELITE Vinyl Resins, one simple operation reduces "walking" without resort to fastening. Just slip this pad under the machine base—and the job's done! No bolts . . . no fasteners of any kind needed to secure the equipment to the floor! Neither machine nor pad will move because of the tremendous friction provided by the specially designed pad.

The manufacturer reports machine installation costs can be cut by as much as 50%! Down-time becomes negligible in equipment relocation.

This revolutionary pad is made of layers of granulated cork and sisal fiber—impregnated with BAKELITE Vinyl Resins. Outer surfaces have a cross-grid embossing that provides a sure grip on machine and floor alike. The pad is tough and durable. It will support pressures up to 4000 psi. It resists water, oil, most chemicals, alkalis and acids.

The same BAKELITE Vinyl Resins impart toughness and resiliency to a similar product—railroad tie pads made of abaca and sisal fiber. These pads greatly extend the service life of cross ties and rail joints by absorbing the punishing pressures and shocks of rail traffic. Write Bakelite Company, Dept. SX-15, for more information on uses and applications for BAKELITE Resins.

More data on the machine pads available from: Clark, Cutler, McDermott Co., Franklin, Mass.

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30 E. 42nd Street, New York 17, N.Y.

rather than replace it." They are made in two styles, one for square windows, the second for casement-type windows, and are also being made in skylight form.

An improved motorized card file introduced by WheelDEX & Simpla Products, Inc., 40 Bank Street, White Plains, N. Y., features push-button positioning. Standard units will handle 200,000 or 300,000 standard-size cards, and units for other form sizes are also being made.

More grinding advantages are available in a large size, hydraulic surface grinder, Model D10, according to the manufacturer, The Do-ALL Company, 254 North Laurel Avenue, Des Plaines, Ill. Additional

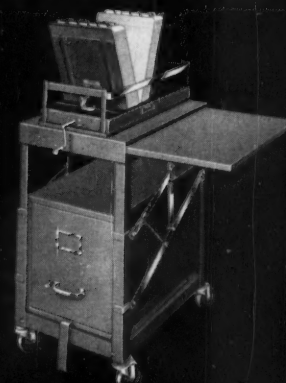


capacity, while maintaining high precision, and a design that allows use of modification for automatic flat or crush form grinding operations, are two advantages of this new model. Production operations, such as downfeed, "skipfeed," and reverse crossfeed grinding may be handled automatically with optional additional features.

In-plant transportation often poses problems. Some of the answers may come from a series of electric runabouts recently introduced for the purpose of moving men and materials faster and more efficiently. With these Electric-Car models, being manufactured by the Victor Adding Machine Company, 3900 North Rockwell Street, Chicago 18, Ill., key men can get to troubled areas with the necessary tools or materials in much less time

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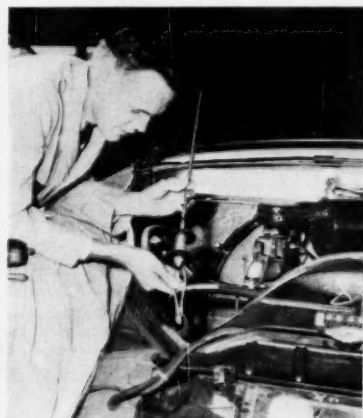
ADDRESS _____

CITY _____

than it would ordinarily take. Deliveries can also be made faster. Three models, The Scooter, The Lugger, and The Courier are designed for plant and similar operations calling for material transportation, while The Pic-A-Bac, seating four, can be used for visitors.

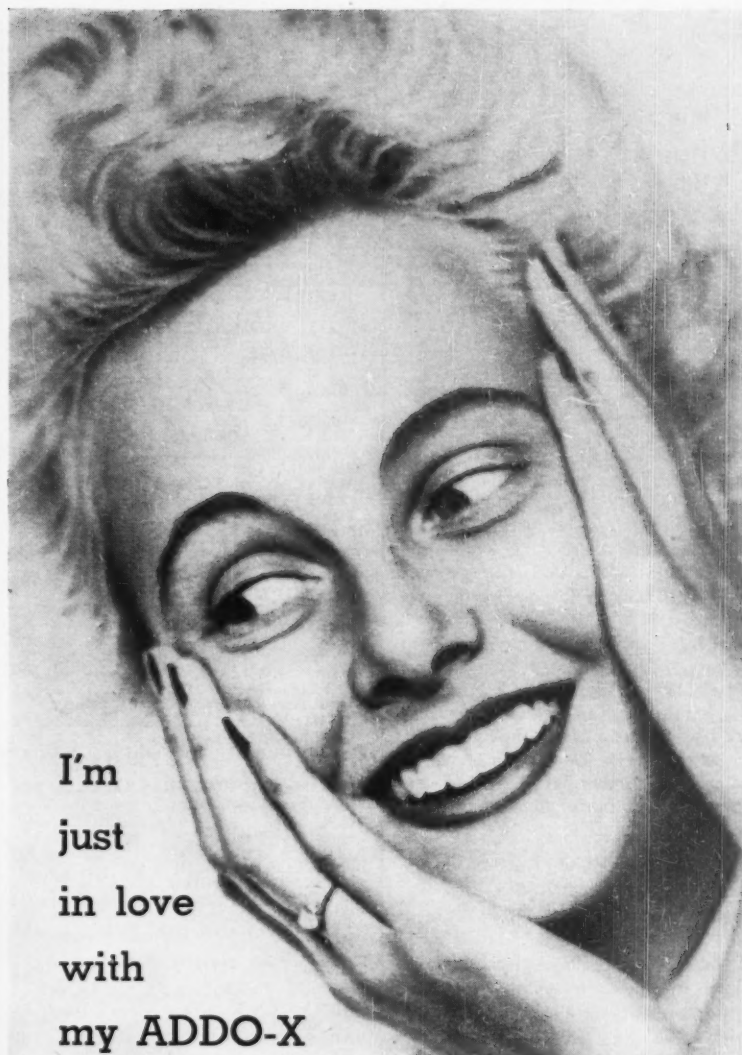
Magnetic sweepers are able to make the job of removing metallic refuse faster and safer. Three stages of pick-up are covered by machines recently announced by the Eriez Manufacturing Company, Erie, Pa.

For roads, airplane runways, and other large areas where bits and pieces of metal endanger other machines, a 48-inch permanent non-electric magnet is incorporated into a motorized road-sweeper. On a slightly smaller scale, the Sweeperette, used as a hand-propelled rolling sweeper, can be used for factory aisles, walks, and so on. The magnetic element is detachable for use as a hand tool. The third item is a four-and-a-half-inch permanent



magnet designed for hand use only. Many uses have been found for this type of recovery tool, and the manufacturers hope to hear of more.

Silicones plus asbestos result in a siding that will resist fire and water, according to Johns-Manville, 22 East 40th Street, New York 16, N. Y. They have joined these two items for their new shingles called Silicone Sealed Asbestos Siding. According to J-M, when water hits the silicone barrier it forms beads which roll off, instead of spreading out, yet the wall is still able to "breathe." Company plants are making the new products in both the Smooth-grain and Cedargrain siding.



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ADVERTISING INDEX

— A —

ACME VISIBLE RECORDS, INC...	120
E. H. Brown Advertising Agency	
ADDO MACHINE CO., INC.....	147
The F. W. Prella Co.	
ALAN WOOD STEEL CO.....	5
John Falkner Arndt & Co., Inc.	
ALGENE MARKING EQUIPMENT CO.....	12
The Lampert Agency	
ALLEGHENY LUDLUM STEEL CORP.....	128
Walker & Downing, General Agency	
ALLIED PRODUCTS CORP.....	21
Charles M. Gray & Asso., Inc.	
ALLIED RESEARCH PRODUCTS INC.....	4
Emery Adv. Corp.	
ALLIS CHALMERS MFG. CO.....	23
Compton Adv., Inc.	
AMERICAN APPRAISAL CO., THE.....	150
The Buchen Co.	
AMERICAN AUTOMATIC TYPE- WRITER COMPANY.....	124
Frank C. Nahser, Inc.	
AMERICAN CREDIT IN- DEMNITY CO.....	140
VanSant Dugdale & Co., Inc.	
AMERICAN PHOTOCOPY EQUIPMENT CO.....	143
Irving J. Rosenbloom Advertising Agency	
AMERICAN PULLMAX COM- PANY, INC.....	76
Grimm & Craigle	
AMERICAN TELEPHONE & TELEGRAPH CO.....	154
N. W. Ayer & Son Incorporated	
ANCHOR PLASTICS CO.....	142
Conti Advertising Agency, Inc.	
AUDIO PRODUCTS CORP.....	82
The McCarty Co.	
AUTOMATIC ELECTRIC CO.....	16
Proebsting, Taylor, Inc.	

— B —

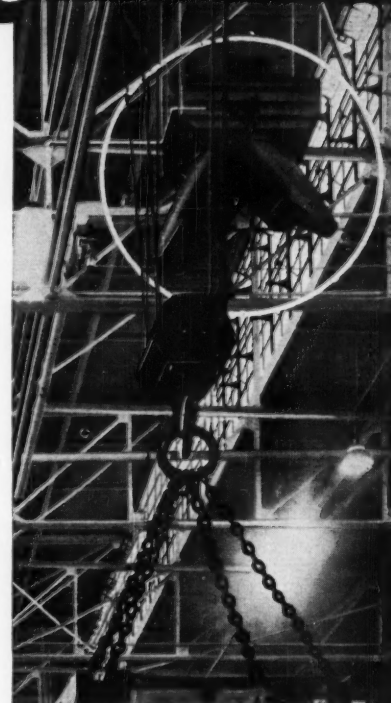
BAKELITE CO., A DIV. OF UNION CARBIDE & CAR- BON CORP.....	101, 146, Cover III
J. M. Mathes, Inc. Adv.	
BAKER-AULANG CO., THE.....	118
G. M. Basford Co.	
BALTIMORE & OHIO RAIL- ROAD.....	86
The Richard A. Foley Adv. Agency, Inc.	
BANKERS BOX CO.....	29
Christopher, Williams & Bridges	
BARBER-GREENE COMPANY.....	132
The Buchen Company	
BARRETT-CRAVENS COMPANY.....	95
The Buchen Company	
BARRINGTON ASSOCIATES, INC.....	137
St. Georges & Keyes, Inc.	
BASIC MATERIALS EXPOSITION	130
James R. Flanagan	
BETHLEHEM STEEL COMPANY..	153
Jones & Brakeley, Inc.	
BISHOP, J. & COMPANY.....	89
BORG-WARNER CORP.....	144
Rogers & Smith Adv. Agency	
BOSTON WOVEN HOSE & RUBBER CORP.....	32, 33
Brooke, Smith, French & Dorrance, Inc.	
BRADY, W. H. COMPANY.....	137
The Brady Company Inc.	
BREUER ELECTRIC MFG. CO.....	133
Grimm & Craigle	
BROOKS AND PERKINS INC....	141
Holden, Clifford, Flint, Inc.	
BUNDY TUBING CO.....	107
Brooke, Smith, French & Dorrance, Inc.	
BUNN, B. H., COMPANY.....	99
Robertson, Buckley & Gotsch, Inc.	
BURGESS-MANNING COMPANY.	102
Merchandising Advertisers, Inc.	
BURROUGHS CORP.....	113
Campbell-Ewald Co.	

— C —

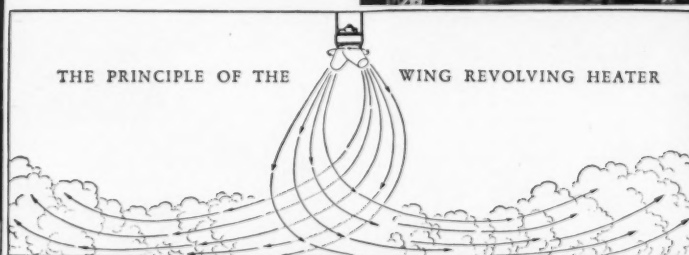
CHALLENGE MACHINERY CO., THE.....	141
Simmonds & Simmonds, Inc.	
CHASE NATIONAL BANK, THE..	80
Albert Frank-Guenther Law, Inc.	
CHESAPEAKE & OHIO RAIL- WAY.....	127
Robert Conahay, Inc.	
CHEVROLET MOTORS DIV., GENERAL MOTORS CORP....	27
Campbell-Ewald Co.	
CHICAGO HARDWARE FOUNDRY CO., THE.....	140
Wilson Advertising Service	
CITIES SERVICE OIL CO.....	131
Ellington & Co., Inc.	
CITY BANK FARMERS TRUST CO.....	77
Kennedy Sinclair, Inc.	
CLEMENT, J. W., CO.....	Cover II
Baldwin, Bowers & Strachan, Inc.	

HEAT THAT MOVES AROUND

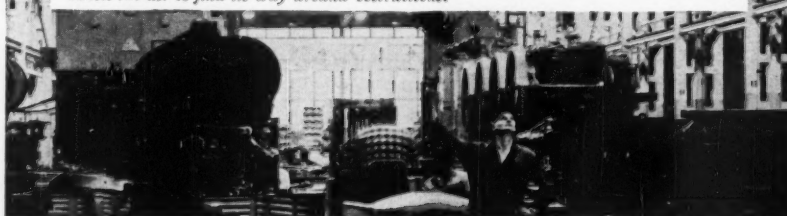
THE fact that the discharge outlets of WING Revolving Unit Heaters keep the heated air in constant, gentle motion is one of the reasons why nationally known firms like the Budd Company have installed them in their plants, both at Philadelphia and in the one shown in this photograph, at Gary, Indiana. The big blanking and forming presses in this great plant present a natural barrier to ordinary fixed discharge heating systems, but not to the moving streams of heated air from the WING Revolving Heaters, even suspended, as they must be, far above the floor, to clear the cranes. That is equally true in the summer time when, with steam turned off, the cooling breezes from the revolving discharge outlets keep workers comfortable on the hottest days. Investigate. Write for Bulletin HR-6.



THE PRINCIPLE OF THE WING REVOLVING HEATER



The moving streams of heated air (or cooling breezes in summer) sweep slowly around through 360 degrees, covering successively every direction. The air velocity is sufficient to carry to walls, and remote corners and the constantly changing direction of flow causes the air to find its way around obstructions.



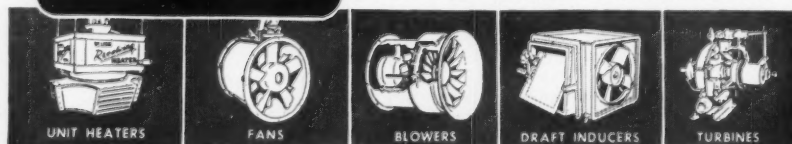
In heating a building, the matter of fresh air supply is also a problem, especially where exhaust equipment is in operation. If there is no adequate means of replacing the exhausted air, cold air will seep in through crevices, loose-fitting windows, doors, etc. and nullify the effect of your heating system. **WING FRESH AIR SUPPLY HEATERS** are the solution. They bring in fresh air through heating coils varied to just the right temperature, replacing exhausted air. **WING REVOLVING UNIT HEATERS** and **WING FRESH AIR SUPPLY HEATERS** are the ideal combination.

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UNIT HEATERS

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DRAFT INDUCERS

TURBINES

COLUMBIA RIBBON & CARBON MFG. CO., THE.....	138	ELGIN NATIONAL WATCH CO..	118
E. M. Freytag Associates, Inc.		Young & Rubicam, Inc.	
COMMERCIAL CREDIT CO....	75, 104	ELWELL-PARKER ELECTRIC CO., THE.....	116
VanSant Dugdale & Co., Inc.		The Bayless-Kerr Company	
CONSUMERS POWER CO.....	79	EMERSON ELECTRIC MFG. CO., THE.....	35
Commonwealth Services, Inc.		Winius-Brandon Company	
CRESCENT TRUCK CO., DIVISION OF BARRETT-CRAVENS COMPANY.....	95	EXECUTIVE LINE, THE.....	20
The Buchen Company		Kaplan & Bruck Advertising	
CUMMINS-CHICAGO CORPORATION (BUSINESS MACHINES DIVISION).....	142	EXECUTONE, INC.....	15
Aubrey, Finlay, Marley & Hodgson, Incorporated		The Joseph Katz Co.	
CUTLER-HAMMER, INC.....	74		
Kirkgasser-Drew, Advertising			
— D —			
DELUXE METAL FURNITURE CO.....	12		
Kuttner & Kuttner, Inc.			
DENISON ENGINEERING CO., THE.....	133		
Wheeler-Kight & Gainey, Inc.			
DETREX CORPORATION.....	81		
Charles M. Gray & Associates, Inc.			
DIAMOND CHAIN CO., INC.....	98		
Kirkgasser-Drew, Advertising			
DIAMOND POWER SPECIALTY CORP.....	138		
Witte & Burden Advertising			
DICK, A. B., COMPANY.....	28		
Fuller & Smith & Ross, Inc.			
DUN & BRADSTREET, INC.....	71		
DUREZ PLASTICS & CHEMICALS, INC.....	125		
Comstock & Co.			
— E —			
EASTMAN KODAK COMPANY (AUDIO-VISUAL).....	15		
Charles L. Rumrill & Co., Inc.			
EDISON, THOMAS A., INC.....	36 & 37		
Green Brodie			



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— H —
HALSEY, STUART & CO., INC.... 151
 Doremus & Company
HAMILTON CASTER & MFG. CO., THE... 145
 Rossi and Company
HANSEN, A. L. MFG. CO.... 137
 J. M. Haggard Advertising
HEINN CO., THE... 96
 Paulson-Gerlach & Assoc., Inc.
HELL-COIL CORP.... 139
 O. S. Tyson & Company, Inc.
HERTZ DRIV-UR-SELF SYSTEM, INC.... 14
 Campbell-Ewald Co.
HYATT BEARINGS DIV., GENERAL MOTORS CORP.... 65
 D. P. Brothier & Co.
HYDRAULIC PRESS MFG. CO., THE... 112
 The Jay H. Maish Company

— I —
I-T-E CIRCUIT BREAKER CO.... 66
 The Richard A. Foley Agency, Inc.
IDEAL STENCIL MACHINE CO.... 125
 Batz-Hodgson-Neuwoehner, Adv.
INDUSTRIAL OVENS, INC.... 96
 Meermans, Inc.
INSERTING & MAILING MACHINE CO.... 70
 Philip I. Ross Company
INTERNATIONAL BUSINESS MACHINES... 6
 Cecil & Presbrey, Inc.
IRONS & RUSSELL CO.... 12
 Knight & Gilbert, Inc.

— J —
J. J. K. COPY ART PHOTOGRAPHERS... 144
 Arthur Pine Assoc.

— K —
KELLOGG SWITCHBOARD & SUPPLY CO.... 12
 Glenn-Jordan-Stoetzel, Inc.

— L —
LE FEBURE CORP.... 146
 Chester A. Ettinger Advertising Agency
LEGGE, WALTER G. CO., INC.... 148
 Chester A. Ettinger Advertising Agency
LEWIS-SHEPARD PRODUCTS, INC.... 124
 Horton-Noyes Company
LILY-TULIP CUP CORPORATION... 143
 Al Paul Lefton Co., Inc.
LOEW'S INC.... 93
 Donahue & Co., Inc.
LOOMIS MACHINE CO.... 132
 Paxson Advertising Inc.
LYCOMING DIVISIONS-AVCO MFG. CORP.... 122
 Benton & Bowles, Inc.

— M —
MAGLINE, INC.... 145
 Rossi and Co.
MAGNESIUM CO. OF AMERICA... 34
 Marsteller, Gebhardt & Reed, Inc.
MAHON, R. C., COMPANY, THE... 91
 Anderson, Inc.
MANFOLD SUPPLIES COMPANY... 142
 Hart Lehman Advertising
MARKEM MACHINE COMPANY... 132
 Meissner & Culver, Inc.
MARSH & McLENNAN, INC.... 78
 Doremus & Company
MARSH STENCIL MACHINE CO.... 126
 Krupnick & Associates, Inc.
MERCURY MANUFACTURING CO.... 150
 O'Grady-Anderson-Gray, Inc.
METROPOLITAN LIFE INSURANCE COMPANY... 121
 Young & Rubicam, Inc.
METROPOLITAN OAKLAND AREA... 75
 Ryder & Ingram, Ltd.
MILLER COMPANY, THE... 94
 Julian Gross Advertising Agency, Inc.

MILWAUKEE DUSTLESS BRUSH CO.... 125
 Al Herr Advertising Agency, Inc.
MOLINE TOOL CO.... 144
 Ross Jewell, Inc.
MONROE CALCULATING MACHINE COMPANY, INC.... 119
 L. H. Hartman Company, Inc.
MONSANTO CHEMICAL CO., PLASTICS DIV.... 83
 Gardner Advertising Co.
MORaine PRODUCTS DIV., GENERAL MOTORS CORP.... 31
 Campbell-Ewald Co.

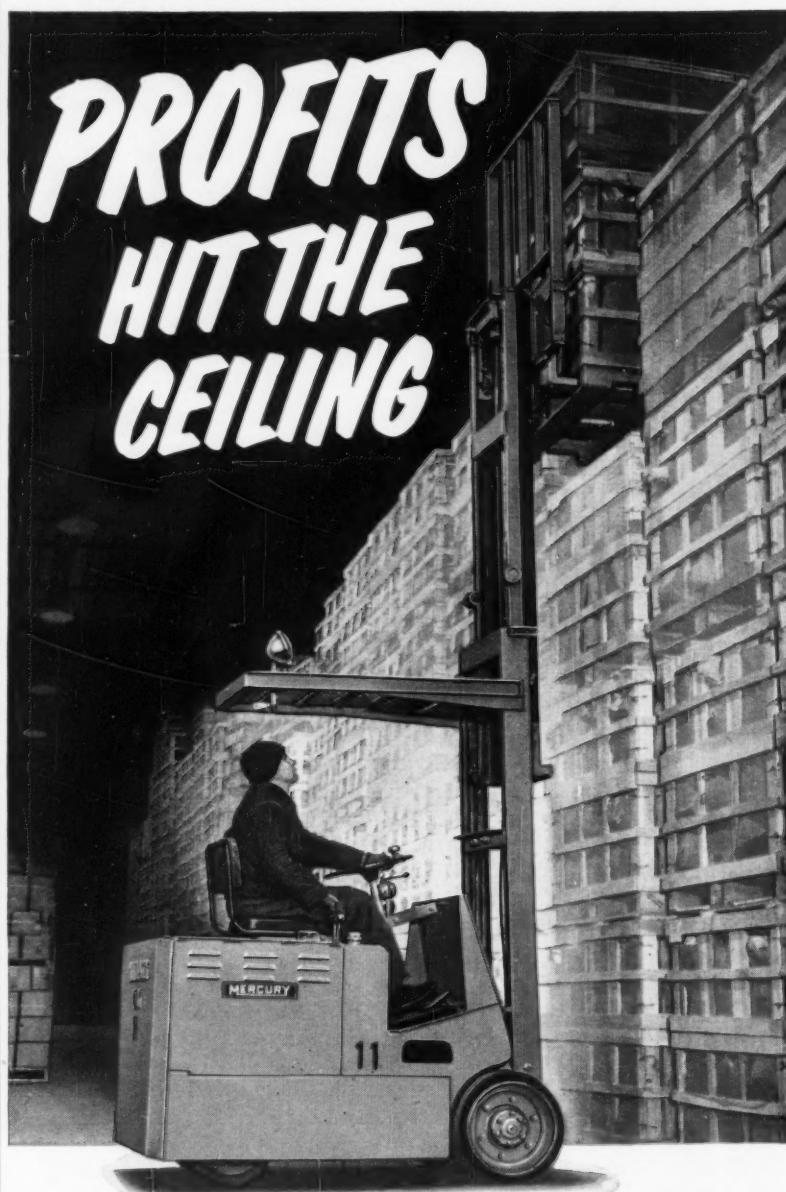
— N —
NATIONAL ACME COMPANY, THE... 24
 Baker, Jones, Hausauer, Inc.
NATIONAL TRUCK LEASING SYSTEM... 144
 W. S. Kirkland, Advertising
NEENAH PAPER COMPANY... 20
 Burnet-Kuhn Advertising Company
NEW YORK CENTRAL SYSTEM... 109
 Foote, Cone & Belding
NEW YORK STATE DEPARTMENT OF COMMERCE... 100
 Batten, Barton, Durstine & Osborn, Inc.

— O —
OBERDORFER FOUNDRIES, INC.... 99
 Richards & Webb, Inc.
OXFORD FILING SUPPLY CO., INC.... 147
 Joseph Reiss Assoc.
OZALID (GENERAL ANILINE & FILM CORP.)... 135
 L. E. McGivena & Co., Inc.

— P —
PALMER-SHILE CO.... 115
 Alfred B. Caldwell, Inc.
PEERLESS PHOTO PRODUCTS, INC.... 103
 John Mather Lupton Co., Inc.
PITNEY-BOWES, INC.... 30, 92, 139
 L. E. McGivena & Co., Inc.
PLUME & ATWOOD MFG. CO.... 93
 Langeler Advertising Agency Inc.
PLYMOUTH LOCOMOTIVE WORKS... 94
 Howard Swink Advertising Agency
PUBLIC SERVICE ELECTRIC & GAS CO.... 82
 United Advertising Agency

— R —
RADIO CORP. OF AMERICA... 87
 Albert Frank-Guenther Law, Inc.
RANSBURG ELECTRO-COATING CORP.... 29
 H. L. Ross Adv. & Publicity
RECORDAK (SUBSIDIARY OF EASTMAN KODAK COMPANY)... 97
 J. Walter Thompson Co.
REVOLVATOR CO.... 126
 LaPorte & Austin, Inc.
RISING PAPER COMPANY... 84
 Gordon Baird Associates, Inc.
ROBBINS, ALFRED, ORGANIZATION, INC.... 20
 Kaplan & Bruck Advertising
ROBBINS & MYERS, INC.... 8 & 9
 Erwin, Wasey & Co., Ltd.
ROLLINS FLEET LEASING... 3
 Hilton & Riggio, Inc.
ROURA IRON WORKS, INC.... 92
 The L. J. Du Mahaut Advertising Agency
ROWE METHODS, INC.... 90
 Dix & Eaton
RYERSON, JOSEPH T. & SON INC.... 25
 Calkins & Holden, Carlock, McClinton & Smith, Inc.

— S —
SCHIEBER SALES CO.... 145
 Burke Bartlett Company, Inc.
SHREDMASTER CORP., THE... 147
 Gramercy Adv. Co., Inc.



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SIGNODE STEEL STRAPPING
COMPANY.....88, 89
The Buchen Company
SOUNDCRIBER CORPORATION,
THE..... 26
H. B. Humphrey, Alley & Richards, Inc.
SOUTHERN NEW JERSEY
DEVELOPMENT COUNCIL... 30
The Cowan Advertising Agency

— T —

TELAUTOGRAPH
CORPORATION..... 90
Gotham Advertising Company
TIMKEN ROLLER BEARING
COMPANY, THE.....COVER IV
Batten, Barton, Durstine & Osborn, Inc.
TODD COMPANY, INC., THE... 116
The Merrill Anderson Company, Inc.

— U —

UNITED STATES STEEL CORP.
OF NEW JERSEY..... 114
Batten, Barton, Durstine & Osborn, Inc.
UNION PACIFIC RAILROAD.... 120
The Caples Company

— V —

VICKERS INCORPORATED..... 13
Witte & Burden
VIKING CORPORATION, THE.. 152
The Jaqua Company
VISIRECORD, INC.18 & 19, 150
Hiram Ashe Advertising, Inc.

— W —

WAGNER ELECTRIC
CORPORATION..... 81
Arthur R. Mogge, Inc.
WATSON MFG. CO.,
ROL-DEX DIV..... 102
Griffith & Rowland
WEBSTER ELECTRIC COMPANY. 78
Reincke, Meyer & Finn, Inc.
WELLINGTON SEARS CO..... 111
Ellington & Co.
WEST BEND EQUIPMENT CORP. 16
Morrison-Greene-Seymour, Inc.
WEST DISINFECTING COMPANY 11
G. M. Basford Co.
WEST PENN ELECTRIC
COMPANY..... 32
Albert Frank-Guenther Law, Inc.
WHEELER INSULATED WIRE
COMPANY, INC., THE..... 34
Edward W. Robotham & Company
WHITING CORPORATION..... 136
Waldie & Briggs, Inc.
WING, L. J., MFG. CO..... 148
Willard G. Myers Advertising Agency
WIREBOUND BOX MFGS. ASSOC. 151
Waldie & Briggs, Inc.
WOOD CONVERSION COMPANY 117
The Buchen Co.

— X — Y — Z —

ZIPPO MANUFACTURING
COMPANY..... 149
N. W. Ayer & Son, Inc.

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**New Color Film
Now Available**

"STEEL SPANS the CHESAPEAKE"

"Steel Spans the Chesapeake," a new 16-mm color film describing the building of the 4-mile-long Chesapeake Bay Bridge, is now available for showings.

This 36-minute film, with factual narration, traces the progress of construction from the sinking of piers to final paving of the roadway. It covers the erection of a wide variety of spans used in the Chesapeake Bay Bridge, including simple beam and girder spans, simple deck-truss, and deck-cantilever-truss spans, a through-truss cantilever span and a 2922-ft suspension bridge.

Among the interesting and unusual erection techniques described in the film is the use of an assembly dock, one mile from shore, where bridge units were assembled, then floated by barge to their final locations. This was the most extensive use of the spectacular flotation method of erection in construction history.

FREE ON REQUEST

There is no charge for the use of this film. We suggest that requests for the film be made *at least* three weeks in advance of the date of showing in order to allow ample time for scheduling and shipment.

Please address your request to: Publications Department, Bethlehem Steel Company, Bethlehem, Pa.

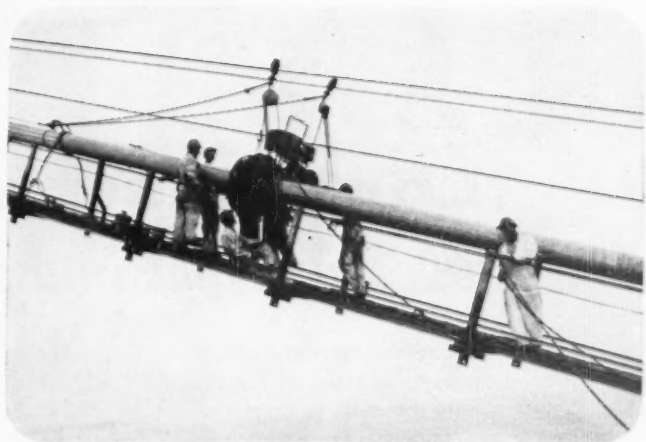
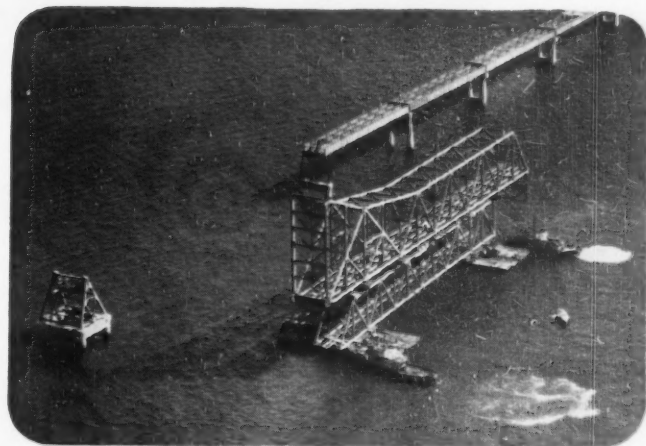
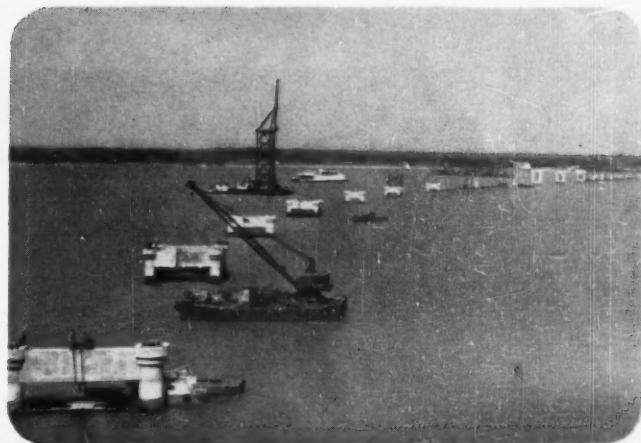
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M O D E R N I N D U S T R Y



APRIL 1954 • 153



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Here are some examples:

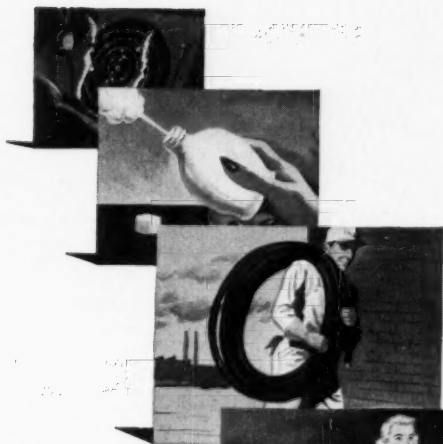
Albany to Hartford	50¢
Baltimore to Norfolk	70¢
Cleveland to Grand Rapids .	85¢
Houston to New Orleans ...	\$1.05
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These are the daytime station-to-station rates for the first three minutes and do not include the federal excise tax.

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Polyethylene first made possible insulation for high-frequency radar equipment. Then, TV lead-in, wire and cable insulation benefited by its unique properties.

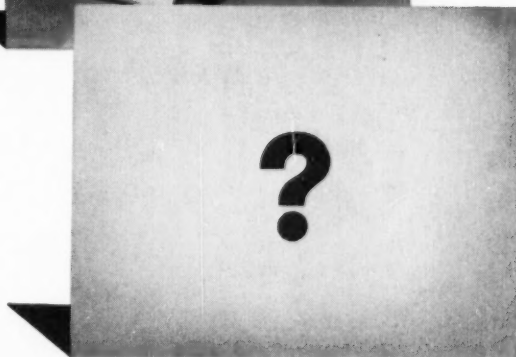
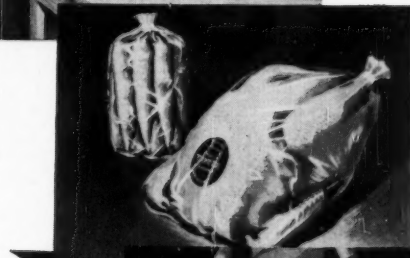
Came the polyethylene squeeze bottle—revolutionizing an industry, supercharging marketing for now over 2,000 products requiring over 75,000,000 bottles.

And more and more pounds of polyethylene go into lightweight, chemical-resistant pipe for farm and industrial water supplies, chemical and medical tubing.

Safer chemical carboys and acid bottles of polyethylene are unbreakable; their light weight brings substantial savings on shipping and handling charges.

Polyethylene film . . . stronger, attractive, easily sealed . . . packages sales appeal and protection around hundreds of items from fresh and frozen foods to shirts.

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Polyethylene

**KEEPING
AMERICA
ON THE GO**

with Timken Tapered Roller Bearings



How the railroads are improving our most envied, but least secret, weapon

683 railroads working together combine all of America's scattered factories into one giant defense plant. The enemy knows all about this weapon—and he's envious.

Why? Because behind the Iron Curtain the railroads *can't* work together. One railroad's cars won't fit the next railroad's tracks. They have to unload and reload goods whenever the gauge changes.

They're 75 years behind us. And now our railroads are putting us even further ahead—with "Roller Freight".

"Roller Freight"—freight cars on Timken® tapered

roller bearings—does away with the hot box problem, No. 1 cause of freight delays.

With old-style friction bearings, lubrication often fails. Then metal rubs metal, the bearing overheats, and a hot box occurs. The whole train has to stop.

But Timken bearings *roll* their loads. Sliding friction can't cause hot box delays with "Roller Freight"!

"Roller Freight" cuts starting resistance 88%, slashes lubrication costs up to 89%, reduces inspection time 90%. When all freight is "Roller Freight", the

railroads will save an estimated \$190 million a year, net 22% annual return on the investment. And goods will move at sustained high speeds.

The railroads, like all industry, keep America on the go with Timken tapered roller bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Cable: "TIMROSCO".



Timken freight car axle bearings
end hot box problem, cut costs

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